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Original Communications.

THE VASO-MOTOR NEURO-MECHANISM, AND THE DRUGS AND OTHER AGENCIES WHICH INFLUENCE IT.

By Charles L. Dana, A.M., M.D.*

THE vaso-motor system stands in a very important relation to many pathological changes. Such common morbid conditions, for example, as congestions, inflammations, and even fevers, are dependent (for their inception at least) upon disturbances of this apparatus. While the heart drives the blood along, the vasal nerves regulate its distribution, and they are called upon in every functional act of the body. It is truly a busy system, shifting the blood about from organ to organ, responding to every call from cerebral cortex to hepatic lobule. The machinery which thus holds the hose, as it were, and manages the stream is therefore necessarily one of much interest. I propose to give some account of it and of the various agencies by which we artificially modify its action.

Physiology of the Vaso-Motor System.—The current of blood as it goes through the blood-vessels constantly undergoes modification, owing to changes in the calibre of the smaller

* Professor of Physiology in the Woman's Medical College of the New York Infirmary; Professor of Nervous and Mental Diseases in the New York Post-Graduate Medical School.

arteries and capillaries. When an artery is reduced to one-twelfth of an inch, the muscular coat becomes prominent and continues so until it is one-eight-hundredth to one-one-thousandth of an inch in diameter, when it becomes a single-walled capillary. The arteries between the above limits are abundantly supplied with nerves and are strictly under the control, so far as their calibre is concerned, of the nervous system.

The nerves and ganglia which thus regulate arterial calibre lie partly in the cerebro-spinal, partly in the sympathetic system. They form the vaso-motor system.

The system consists of,—

I. Vaso-motor centres.

II. Afferent and efferent nerves.

III. Local independent ganglia.

I. The vaso-motor centres lie in the floor of the fourth ventricle and in the gray matter of the spinal cord.

The dominant or chief vaso-motor centre is in the floor of the fourth ventricle. It lies about four centimetres above the point of the calamus scriptorius. It is double, one centre lying on each side of the median line and about two and a half centimetres from it. The dimensions of each centre are about three by one and five-tenths centimetres. Each centre is made up of separate parts, which control different districts or organs of the body,—*e.g.*, liver, kidneys, etc.

This centre exercises during most of the time a slight tonic or constricting influence upon the blood-vessels. When destroyed or cut off from the parts below it, the blood-vessels dilate. After a time, however, if life continue, the vessels contract again. This is because the subordinate centres in the spinal cord act and do the work of their late superior. Pathological observations show that this vaso-motor centre exists in man as well as in lower animals.

The vaso-motor centre, like its neighboring centres, is being constantly excited or depressed in its action. This is done both by direct and indirect agencies. From the centre pass out nerves which are distributed to the blood-vessels. These nerves carry *afferent* and *efferent* impulses.

II. Afferent and efferent nerves.

The efferent vaso-motor nerves are of two kinds,—

1. Vaso-constrictors.

2. Vaso-dilators.

They are distributed somewhat as indicated below, but their anatomy is not perfectly known, especially in man. Most observations have been made upon dogs, cats, and rabbits.

A. Distribution of efferent (constrictor and dilator) vaso-motor nerves.

a. Some pass from the centre, in the medulla, directly into certain cranial nerves; in the fifth nerve, to the vessels of the eye (retina and part of iris); in the fifth and twelfth, to those of the tongue; in the vagus (ninth), to the lungs (?) and some of the abdominal viscera (stomach, liver, and kidneys). Some of these fibres are reinforced by other vaso-motor nerves coming from the spinal cord, cervical sympathetic, and cranial sympathetic.

b. The remainder of the fibres pass down into the spinal cord, where they meet the subordinate centres.

They then pass out through the anterior roots and are partly continued in the cerebro-spinal nerves, while part pass *via* the rami communicantes to the sympathetic ganglia, and from these to the blood-vessels.

c. Those which pass into and connect with the cervical ganglia supply the external ear and face, the pharynx, the conjunctiva, iris (in part), retina (in part), œsophagus, larynx, and thyroid gland, the brain and meninges (in part. Fibres from the cranial nerves, uniting to form the carotid plexus, also supply these parts). The auricularis magnus receives some vaso-motor fibres also.

d. The upper extremity is supplied by fibres which pass out through the anterior roots of the middle dorsal nerves; thence to the first dorsal ganglia: thence to the brachial plexus.

e. The skin and muscles of the trunk are innervated by fibres passing in the dorsal and lumbar nerves.

f. The vessels of the lower extremities are innervated by fibres that pass into the lumbar and sacral plexus, thence *via* sciatic and crural nerves to their distribution.

The pulmonary vessels are innervated partly by fibres in the vagus, partly by fibres from the first dorsal ganglion.

The intestines are supplied by the greater and lesser splanchnics. These nerves are pre-eminently vaso-motor nerves, and have most important controlling functions. Their section causes a vaso-motor paralysis and profound congestion of the intestinal tract, with great arterial depression.

The liver vessels are innervated by the splanchnics, and their influence is most important in the functioning of this organ.

The Spleen.—The vaso-motor centre of the splenic vessels lies in the cervical cord. From here nerves pass out through the lower cer-

vical nerves into the left splanchnic, thence to the spleen.

The Kidneys.—The vaso-motor centre for the renal vessels lies in the floor of the fourth ventricle, in front of the vagus nuclei, and just behind the vaso-motor centre for the liver vessels. The fibres pass down the cord, enter the splanchnic, thence *via* the renal plexus to the kidneys.

The above efferent nerves have, almost without exception, a constricting influence. They are the vaso-constrictors. This class of efferent vaso-motors runs mostly in the sympathetic.

2. *The Vaso-Dilators.*—These originate in the vaso-motor centre (Landois assumes an independent vaso-dilating centre, but such hypothesis is not necessary).

The principal nerves are as follows:

a. Some run in the *chorda tympani* to the sublingual and submaxillary glands, and to anterior part of the tongue.

b. Some in the *glosso pharyngeal* to the posterior part of the tongue.

c. In the *vagus* to the kidneys (?).

d. The *nervi erigentes*, from the sacral plexus to the corpora cavernosa.

e. The *sciatic* nerve contains both dilator and constrictor fibres. The former are excited by weak rhythmically-acting stimuli. They also degenerate more slowly than the constrictors; their action also is ordinarily subordinate to the latter. Hence if the sciatic nerve is cut there is at first a vaso-motor paralysis; stimulation of the nerve then causes constriction of the vessels in the limb. After a few days, however, the vaso-motor paralysis disappears,—the vessels regain their tone through the action of their local ganglia. Then stimulation of the sciatic causes vascular dilation.

f. The nerves distributed to the *voluntary muscles* contain vaso-dilator nerves. The same impulse which causes muscular contraction causes vascular dilation,—a wise provision for keeping the working muscle nourished.

The vaso-dilators run chiefly in cerebro-spinal nerves.

B. The vaso-motor nerves contain also *afferent fibres.* These run in the sympathetic and cerebro-spinal nerves. They enter the spinal cord *via* the posterior roots and run up to the vaso-motor centre. Their function is that of reflex excitation or inhibition of this and of the cardio-inhibitory centre.

The afferent fibres are therefore classed as *pressor* and *depressor* of the above-named centres.

These afferent nerves (pressor and depressor) include nearly all the sensory nerves and certain purely excito-reflex nerves. They are not, therefore, anatomically, an independent system. Almost any sensory or excito-reflex nerve may act upon the centres referred to. There are, however, some which seem to have a special function in this direction. These I shall enumerate.

(*a*) *The Depressor Nerves.*

1. Most prominent among them is the so-called depressor nerve of Ludwig. This nerve springs from a branch of the superior laryngeal, and often by a second branch from the trunk of the vagus. Its fibres run down to the cardiac plexus and communicate also with the splanchnics. Its stimulation causes lessened action of the vaso-motor centre, with decrease of blood-pressure. With this depression impulses pass over to the cardio-inhibitory centre, causing a slower heart-beat.

2. The pulmonary nerves (vagus and sympathetic) act as depressors under the stimulus of forced expiration.

3. Sudden painful excitations of sensory nerves act as depressors of the vaso-motor centre.

III. The local automatic ganglia. Distributed along the smaller arteries are small nerve-ganglia, which are in connection with the muscular coats and with the vaso-motor nerves.

These ganglia normally supplement the action of the vaso-constrictor nerves in giving tone to the arteries. If the vaso-constrictors are cut off, the blood-vessels at first dilate, but after a time they contract again, regaining their normal tone. This shows that the local ganglia may be sufficient to keep the vessels constricted without any help from the nerve-centres.

The vaso-dilator nerves are also in connection with these local ganglia, but they do not act constantly. When a vaso-dilator nerve is stimulated we suppose it to inhibit or paralyze the tonically-acting local ganglia, or else to interfere with the passage of tonic impulses from the vaso-constrictor centre. A dilatation of the blood-vessels therefore ensues. If the vaso-dilators, however, are cut, no constriction of blood-vessels follows, showing, as we have said, that they are not constantly acting.

The relation of the constrictors and dilators to the arterial walls is very analogous to that of the inhibitory and accelerating nerves to the heart. The analogy is the more striking because, through the influence of the local

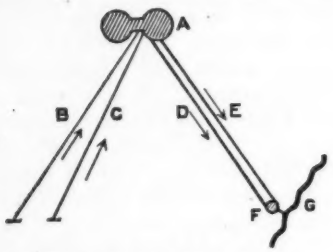
ganglia, the arteries are constantly, slowly and rhythmically changing their calibre, and this apart from the regular pulsatile changes produced by the heart.

The local ganglia can be affected also by direct excitations,—*e.g.*, cold, heat, electricity.

Ordinarily it is probable, however, that local and general changes in calibre are affected by reflex or direct action upon the vaso-motor centre.

FIG. 1.

DIAGRAMMATIC REPRESENTATION OF THE VASO-MOTOR NEURO-MECHANISM.



A. Bilaterally arranged vaso-motor centre.
B, C. Afferent pressor and depressor nerves.
D, E. Efferent vaso-constrictor and dilator nerves.
F. Local ganglia.
G. Blood-vessels.

The vaso-motor neuro-mechanism sustains very important relations with other parts and with different functions of the body.

The Vaso-Motor Nerves and the Temperature.—The vaso-motor system has an important though secondary function in regard to the temperature regulation. After cutting vaso-constrictor nerves (*e.g.*, the cervical sympathetic) there follows increased flow of blood to the part supplied, transudation of serum, and increase of temperature. After a time, owing to the vascular paralysis, the blood flows less freely through the part, and the temperature falls again.

If the nerve is powerfully stimulated there follows blanching of the part, diminished transudation, and lowering of temperature.

Through changes in the arterial calibre the vaso-motor system exerts an influence upon the temperature of the whole body. Thus, the continual tonic contraction of the cutaneous vessels prevents too great loss of heat. After entire paralysis of the vaso-motor system (by section of upper cord) the cutaneous vessels dilate, heat is rapidly lost, and the temperature falls. Similar but slighter effects follow upon human beings after the inhalation of amyl nitrite.

The Relations between the Vaso-Motor and Cardiac Mechanisms.—These are intimately related, acting generally in a compensatory manner.

Thus, with every heart-beat the depressor nerve is excited, the vaso-motor centre depressed, and the blood-vessels relax a little for the easier emptying of the heart's contents.

If the heart beats strongly and turbulently, the depressor nerve tends to cause a relaxation of the blood-vessels, thus lessening the resistance and work for the heart.

On the other hand, if the vaso-motor centre becomes strongly excited and arterial tension high, the increased work of the heart is also an increased stimulus *via* the vagi to the cardio-inhibitory centre. The heart, in consequence, beats more slowly.

When the vaso-motor centre is depressed and arterial tension is low, the heart, having less resistance and less stimulus, beats more rapidly and with less force.

Many things complicate the above relations, however, and general statements must be made and received with much care.

The Trophic Function of the Vaso-Motor System.—Many trophic changes in the hair, nails, skin, and muscles can be ascribed simply to circulatory disturbances resulting from vaso-motor paralysis or constriction. Scleroderma and Raynaud's disease are examples of the abnormal influence which vascular tonus may have upon a part.

The Cortical Vaso-Motor Centre.—There exists a centre in the cortex of the dog's cerebrum, near the sulcus cruciatus, which has some connection with the temperature and vaso-motor supply of the body. Irritation of it causes a fall of temperature, and destruction, rise of temperature upon the opposite side of the body.

Fibres run from it *via* the cerebral peduncles to the medullary centre. Irritation of the cerebral peduncles will cause vascular constriction of the blood-vessels of the opposite side of the body.

The cortical centre has, no doubt, something to do with the mechanism by which emotions affect the vaso-motor centre.

The *medullary vaso-motor centre*, whose situation and function have been described, is subjected to direct and indirect stimulation and depression.

The *direct stimulants* are various conditions of the blood.

a. Venosity. In dyspnœa the arteries are constricted, and the highly venous condition of the blood just before death stimulates the centre so powerfully that the arteries are emptied of their blood.

b. Sudden anæmia stimulates the centre in an analogous way with carbonized blood.

c. Certain drugs (*vide infra*).

d. Mechanical pressure on the choroid plexus is thought (by Moxon) to stimulate this as well as the cardio-inhibitory centre in the following way: When the arterial tone is lessened and the blood rushes more freely into the vessels, the choroid plexus (as it lies over the floor of the fourth ventricle) swells and presses upon the parts below. The vaso-motor centre is stimulated, the arteries contract, the cardio-inhibitory centre is stimulated, the heart beats more slowly: the total effect being a diminution of the blood in the choroid plexus and relief of the pressure it exerted. This mechanism seems very pretty, but it is too grossly mechanical to be more than of subordinate or occasional importance.

e. Electric irritations applied directly to the parts in lower animals stimulate the centre. The electric current must be sent in successive shocks, since single ones do not act. It is necessary that there be a "summation" of the electrical stimulus. The best effects result with ten to twelve strong induction-shocks per second.

Direct Depression.—The vaso-motor centre, though constantly acting, seems to act less strongly,—

a. In apnœa.

b. In profuse hemorrhages. The first effect is depression; later, however, the anæmia stimulates the centre.

Indirect Excitation and Depression.—The nerves which reflexly excite or depress the vaso-motor centre are called, as I have said, pressors and depressors.

The *pressor* nerves are acted upon by the following:

a. Almost all sensory nerves can, under proper (generally mild) irritation, stimulate the vaso-motor centre. Thus feeble electrical stimuli or warm applications to the skin stimulate the vaso-motor centre and indirectly strengthen the heart's action. Strong electrical and cold applications have a contrary effect.

b. The trigeminus contains pressor fibres in its nasal distribution, and irritative vapors will cause increase of blood-pressure.

c. Mental emotions may excite or depress the vaso-motor centre.

The Action of Drugs upon the Vaso-Motor Neuro-Mechanism.

The parts of this mechanism which are singled out are,—

I. The vaso-motor (constrictor) centres in the medulla and spinal cord.

II. The afferent nerves to this centre.

III. The muscular coats of the arteries, their hypothetical local motor ganglia, and the efferent vaso-motor nerves distributed to them.

It is probable that some drugs cause an active dilatation of blood-vessels by stimulating vaso-dilator nerves or afferent fibres,—*e.g.*, the action of atropine upon the dilating fibres of the chorda tympani and of aconite upon depressor fibres. In most cases, however, we can only speak with certainty of excitors and depressors of the vaso-constrictor mechanism.

I. The vaso-motor centre (constrictor).

Stimulants (to centre A, Fig. 2):

Digitalis, in moderate doses.
Convallarine.
Morphine, primarily; in large doses, it depresses.
Veratria, first excites, then paralyzes, in moderate doses.
Hydrocyanic acid, first excites, then paralyzes, in moderate doses.
Atropine, in not too large doses, stimulates.
Strychnine, at first in moderate doses; acting also on peripheral fibres.
The bromides, and perhaps the iodides.
Nicotine, at first and temporarily.
Camphor.
Ammonia, alcohol, ether.
Lead salts.
Quinine, in small doses, physostigma.

Depressants (to centre A):

Antimony, ipecac, in nauseating doses.
Hydrocyanic acid, in large doses.
Chloroform, in moderate and large doses.
Veratrine, in large doses.
Mercury, in long-continued doses.
Chloral.
Turpentine, pilocarpine.
Venesection, in large amount.

II. The afferent nerves to this centre (C c c in diagram, Fig. 2).

Paralyzant, acting on depressor fibres:

Aconite. This drug does not affect the centre directly, but paralyzes depressor nerves.

III. The efferent or vaso-constrictor nerves and local ganglia (A to B in diagram, Fig. 2).

Stimulants:

Cocaine, first stimulates, then paralyzes.
Strychnine (see above).
Ergot.

Depressants:

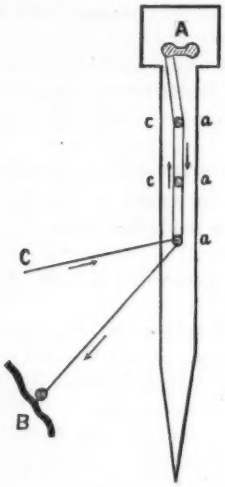
Amyl nitrite, nitro-glycerin, and similar compounds.

Arsenic, in large doses.

Morphine, in large doses.

FIG. 2.

DIAGRAM SHOWING THE PARTS OF THE VASO-MOTOR MECHANISM ACTED UPON BY DRUGS.



A. Dominant vaso-constricting centre in medulla.
a a a. Subsidiary centres in spinal cord.
C c c. Afferent depressor nerves.

In some cases it is impossible to say whether the rise or fall in blood-pressure following the use of a drug is dependent upon its action on the heart or on the vaso-motor centres system, or both. It is very certain, however, that some of the drugs enumerated do have a predominating influence upon the vaso-motor part of the circulatory apparatus. And we may conclude that the drugs most powerful in this respect are, as stimulants, ergot, atropine, strychnine, digitalis, convallaria and its allies, bromides, iodides, and, very temporarily, cocaine.

The most marked depressants are aconite, amyl and its allies (which affect chiefly the brain, head, and trunk, but not the lower extremities or lungs), large doses of morphine and of atropine.

Among the most important agents for affecting the vaso-motor apparatus are mechanical irritants, heat, cold, and electricity. Heat, when applied to the skin, has a tendency to dilate both the cutaneous blood-vessels and those of the organs or tissues seated deeply beneath, acting in the latter case upon the depressor fibres. Applied directly to the vessels of an open wound, heat of considerable intensity causes them to contract. Cold has an opposite or constricting effect, locally and reflexly, but it, too, is temporary in character.

Galvanic currents passed through the brain from brow to back of neck have a slight constricting effect upon the meningeal vessels of mammals. Currents passed in an opposite direction have a doubtful dilating influence. The effect of electrical stimuli applied directly to the vaso-motor centre has been referred to. Galvanic currents, if strong, have a prolonged topical dilating effect.

Induced currents and static electricity act upon the vaso-motor apparatus like other mechanical irritants. The general effect of cutaneous irritants is to cause, locally, a dilatation of blood-vessels, and, reflexly, a vascular constriction in internal tissues, through stimulation of the vaso-motor centre and rise of blood-pressure.

According to physiological experiment, venesection does not lower blood-pressure in healthy animals (except very temporarily), unless the amount of blood removed is very large (three to four pounds). Similarly, injections of blood, unless in large amount, do not raise the blood-pressure. Venesection has really, therefore, the effect of stimulating the vaso-motor centre in healthy animals; transfusion, of depressing it.

50 W. FORTY-SIXTH ST., NEW YORK.

PHARMACOLOGICAL CONTRIBUTIONS FROM THE UNIVERSITY OF PENNSYLVANIA.

HOW TO DEODORIZE AND PRESCRIBE IODOFORM.

BY CHARLES PETTIT STOUT, M.D., FLORENCE, BURLINGTON CO., N. J.

IODOFORM has been called the "Samson of smells," and much has been written and a great many experiments have been made in trying to disguise or to modify its odor. This odor, which is a very serious objection, is very persistent, and, to most persons, disagreeable and nauseous. Many physicians would order it a great many more times than they do, but on account of this odor are obliged to order some other drug. As this is a very valuable medicine, and a physician's armamentarium is not complete without it, the writer is one of the many who has been

experimenting with it, and has made numerous experiments since the year 1880, and has tried a great many substances. Almost all of the oils which have a pleasant odor and taste I have used, sometimes two or more oils rubbed with the iodoform and others by themselves. Some of them answer very well for a very short time, but the odor of the iodoform soon predominates; also many persons do not like the same odors which others think are very agreeable. I have used bals. Peru, which is very good, in pills, or unguent. powd. gum benzoin and benzoic acid; also tannin (see my experiments in *Philadelphia Medical Times*, No. 371, vol. xii.); but this mixture will undergo a chemical change in a short time, while tannin is not always indicated when iodoform is. My idea in these experiments has been to deodorize or modify the odor of this drug without altering its effect, either chemically or therapeutically. I have discovered three chemicals which, if used alone or in combination with each other, will have this most desirable action; they are *coumarin*, *vanillin*, and *cinnamic acid*. These three have given the most satisfaction in all cases in which they have been used.

Vanillin, $C_8H_8O_3$ (methylprotocatechuic aldehyde). This is the odoriferous principle of vanilla, the fruit of vanilla planifolia, in which it exists to the amount of about two per cent.

Vanillin crystallizes in stellate groups of colorless needles, melts at 80° C. (176°–177° F.), and sublimes when cautiously heated; dissolves sparingly in cold, more freely in hot, water; easily in alcohol and ether. When boiled with diluted hydrochloric acid it is resolved into methyl-chloride and protocatechuic aldehyde, and when fused with potassium it is converted, by oxidation of the aldehyde group, CHO, and separation of the methyl group, into protocatechuic acid.

It is produced artificially from coniferin, $C_{16}H_{22}O_8$, a glucoside occurring in the cambial secretions of all coniferous plants, by oxidation with chromic acid mixture; or the coniferin may be resolved by boiling with diluted acids, or by the action of emulsin, into glucose and coniferyl-alcohol.

Vanillin can be prepared from aceto-eugenol by careful oxidation, also from phenylic alcohol (carbolic acid), and is said to have been found in beet-sugar.

The physiological effect seems to be a weak nerve-tonic. I have been unable to find any recorded experiments with this chemical, but there have been cases reported of supposed poisoning from its use in flavoring confections, ice cream, cakes, etc., but without sufficient ground to sustain them. I have taken 3-grain doses of the artificially-prepared vanillin every three hours until 15 grains were taken, without producing any poisonous effect. There was a slight rise in the temperature, with eructations, with the characteristic odor of the vanillin. Applied externally, no effect was felt either on the sound or abraded surfaces of the body.

Coumarin, or *coumaric anhydride*, is the odoriferous principle of the fruit dipteryx odorata, or tonka-bean, and has been isolated from many other plants, as melilotus officinalis, asperula odorata, anthoxanthum odorata, and galium triflorum and many other rubiaceous plants. The very agreeable odor which is developed in new-mown hay is said to be due to a chemical change which takes place producing coumarin. It may be extracted from these plants by alcohol, and crystallizes in slender, shining, colorless needles, melting at 67° C. (152.6° F.), and distilling without decomposition at a higher temperature. It has a very agreeable and fragrant odor and a slight burning taste. It is slightly soluble in cold, but more soluble in hot, water and in alcohol, also in ether and chloroform. By long boiling in potash-lye it is converted into coumaric acid ($C_9H_8O_3$). Sodium amalgam converts it into melilotic acid ($C_9H_{10}O_3$). Coumarin is formed artificially by dehydration of acetosalicylal (isomeric with coumaric acid) action of acetic anhydride on sodium salicylal: $C_7H_5(C_2H_2O)O_2 + H_2O = C_9H_6O_2$. The physiological action of this chemical is not yet sufficiently known, therefore I cannot enter into any details; but wishing to satisfy myself that if taken internally or applied externally it would act as an irritant or poison, I took 5-grain doses of the artificially-prepared article every two hours for four doses without producing any effect, except a very slight burning in the stomach for a few moments after administration, which soon passed away.

Cinnamic acid ($C_9H_8O_2$) is produced by oxidation of cinnamon oil (cinnamic aldehyde, C_9H_8O) in air or oxygen, and exists ready formed, together with benzoic acid and certain oily and resinous substances found in Peru and Tolu balsams (the myroxylums) and *styrax calamita*. Cinnamic acid crystallizes from hot water in slender needles and from alcohol in thick prisms. This acid is produced synthetically, 1st, by heating benzoic aldehyde in close vessels with acetyl chloride;

2d, by heating the same aldehyde with acetic anhydride and sodium acetate; 3d, by treating potassium benzoate with chlorethidene; 4th, by the action of sodium and carbon dioxide on monobromocinnamene.

When taken internally it does not seem to have any decided action. It produces a mild warmth. Externally, when applied to ulcers and abraded surfaces, it has decided antiseptic power. I have used it in several cases, dusting it on the parts affected. It is devoid of taste, and should be free from odor; but I have handled a great many samples of the said pure acid and have never seen it odorless, but with a decided pleasant odor, due to the oil and benzoic acid which it contains.

I have used all three of the above articles with sufficient success to recommend them very highly. Since I have not found any difference in this use of them between the chemicals as they exist naturally and those which had been prepared artificially, I recommend the latter, as they are not near so expensive as the natural chemicals and can be had and used freely without much expense.

Either of the three can be used in any case which suggests the use of iodoform, either dusted on an ulcer or made up into an ointment, pills, suppository, bougies for nasal catarrh (called nasal bougies), or in a very fine powder for the same use. Iodoform also can be used for catarrh of the middle ear; and in this disease, as well as in nasal catarrh, the iodoform combined with cinnamic acid is an excellent application, used in a very fine powder. The cinnamic acid acts not only as a deodorizer, but as an antiseptic. Coumarin seems to cover the odor of iodoform the best of the three, owing to its very pleasant odor; also, by taking equal parts of coumarin and vanillin we have a very pleasant deodorizer, or we can use equal parts of all three.

How Iodoform should be Prescribed.—1. To make a deodorized powder the iodoform must be in a very fine powder, likewise the chemical used to deodorize, and very thoroughly incorporated and let stand for one or two months in a glass-stoppered bottle.

2. To make ointments, take the deodorized iodoform and mix with vaseline or cosmoline, as the best base for the ointments.

3. In making into a pill mass add glycerin, which will keep the pill moist for a long time, owing to the hygroscopic properties of the glycerin.

4. To make suppositories, melt the ol. theobromæ at a gentle heat and stir in the deodorized powder, and pour into moulds of usual size.

5. To make the ethereal solution, add deodorized powder to the ether: can use one drachm to ounce of ether, or more if desired.

6. To make nasal bougies, cut a slender piece of fine strong sponge, about one inch and a half long, roll between two boards with pressure in shape of a thin cylinder, place a piece of strong silk through one end, and melt by gentle heat the vaseline or cosmoline with the white wax, and stir in the deodorized iodoform; keep stirring, and immerse the sponge and withdraw and cool and immerse again, and repeating until large enough (but stirring constantly), or about the size of a goose-quill; then hang up by silk until cool; then coat with a solution of gelatine containing about ten per cent. of glycerin, which will easily melt at the temperature of the body. The bougie should be introduced into the nasal cavity at night and withdrawn the next morning. One will do for several applications.

7. Can also use the deodorized iodoform by mixing with solution of collodion or solution of gutta-percha, by mixing the powder with either solution and painting the parts and let dry, then paint over the first with the pure solution. By this means we prevent the iodoform from volatilizing by this impenetrable coating and secure the action of the deodorized iodoform.

The following formulæ I have satisfactorily used, and recommend them after making many experimental combinations:

Pulv., No. 1.

℞ Iodoform, parts 9;
Coumarin, part 1. M.

Pulv., No. 2.

℞ Iodoform, parts 9;
Vanillin, part 1. M.

Pulv, No. 3.

℞ Iodoform, parts 9;
Acid. cinnamic, parts 2. M.

For Ointments.

No. 1.

℞ Pulv., Nos. 1, 2, or 3, parts 60;
Ung. petroli, parts 420. M.

For Pills.

℞ Iodoform, ʒi;
Vanillin,
Coumarin, āā gr. v;
Glycerin, gtt. v;
Bals. Peru, q. s.

M. et fiat mas et div. in pil. No. xxx, silver-coated.

For Ethereal Solutions.

No. 1.

℞ Pulv., Nos. 1, 2, or 3, ʒi;
Ether, fʒi. M.

INORGANIC FOODS.

By N. A. Randolph, M.D., Philadelphia, Pa.

In considering the different food-stuffs, we must regard water as of prime importance. In the average adult this body constitutes from fifty-nine per cent. to sixty-five per cent. of the entire weight. Older observers have given this proportion somewhat higher; thus Bernard, following Chaussard, gave the average proportion of water in the human economy as ninety per cent. This, however, was far too high, the error lying in the desiccation of the cadavers investigated, which were in this case subjected to destructive distillation. Of the entire water of the body, we find fifty-five per cent. in the muscles and only three per cent. in the cerebro-spinal system and nerve-trunks. We further find the amount correlated with the age of the individual; thus, in mice there is found in the embryo eighty-seven per cent. of water; in the new-born, eighty-two per cent., and at eight days old, seventy-six per cent.; in the adult mouse, seventy per cent. In advanced age, in all mammalia, the tissues are again rich in water as in early youth. As the result of bad nourishment also the organism becomes richer in water; thus, a carnivore (*e.g.*, a dog) fed on bread will lose relatively little in weight, but much urea. On feeding him with meat he at once loses weight and passes by various channels far more water than is ingested, although he is in reality gaining in flesh. A bread or potato diet favors the accumulation of water in the tissues of the human economy, also with the resultant false appearance of health and misleading plumpness of the individual. On returning, however, to a normal dietary containing the proper proportion of proteid material there is a similar decrease in weight, and the water leaves the body literally in streams. We must regard water as an essential condition for the manifestation of all vital phenomena. It is a common carrier of pabulum to each minute part, and at the same time a scavenger for the removal of the waste products. Most chemical reactions and the action of ferments require water, as do also the molecular movements of nerve-conduction and muscular contraction.

The percentage of water in organs cannot be greatly altered without corresponding disturbances in health. In certain diseases, as cholera, there is a diminution in the percentage of the water contained in muscles and nerve of from five to six per cent. As a result of this, however, the blood becomes thick and slow in its movement, urine is no longer excreted, and further removal means the death of the individual, or, in the lower forms of life, a suspension of all the vital activities until such time as the water removed shall be restored. Thus the common wheel-animalcule may be completely dried and kept, free from moisture, as an impalpable powder; but on the addition of water to this powder the animals in question immediately resume all vital activities, and if subjected to microscopic examination cannot be distinguished from other living and moving infusoria of the same genus.

In the adult human body water is constantly lost by urine, fæces, skin, and lungs, chiefly, however, from the former channel. The amount of water daily eliminated varies from two to three litres. It is renewed and its normal proportion maintained by various drinks, the fluid portion of foods, and by the oxidation of carbohydrates. By this last method alone from three-fourths of a pint to one pint of water is daily formed in the average adult body. No destruction of water occurs in the economy.

In starvation the percentage of water is not decreased in spite of constant losses. This is due in part to production of water by the oxidation of carbohydrates, just mentioned, and to the fact that as the albumens of the body are destroyed in starvation the water which was combined with them becomes free. On this account combined hunger and thirst is more easily borne than thirst alone. Excess of water ingested only temporarily increases the water percentage of the various organs, the loss by the kidneys, etc., being almost immediate; but before its excretion this excess of water must circulate from cell to cell throughout the entire body, and in so doing it not inconsiderably increases the activity of the tissue. Thus, in experiments upon himself, Genth found that in his usual daily life he excreted from forty to forty-five grammes of urea. When, however, he drank from two to four litres of fluid in excess of his habitual amount, the amount of urea excreted was from forty-six to fifty-five grammes; that is, an increase of from fifteen to twenty-two per cent.

In children, with whom both tissue-activity

and tissue-destruction is very great, there is again a great demand for water, and an interesting clinical fact, pointed out I believe by the late Dr. Meigs of this city, is that in the great majority of cases in which children cry without apparent cause the origin of their distress is lack of the water needed to wash away the products of tissue-change.

From a hygienic stand-point it is of the greatest importance that the water drunk shall be pure, and the following brief rules by Fischer, perhaps the best authority upon this matter, will be found of service:

The water must be clear, colorless, and odorless. The extremes of temperature through which it should exist at different times of the year are narrow, viz., from 6° to 12° C. (40.8° to 50° F.). It must not contain more than the most minimal amount of organic matter (.04 of one per cent.), absolutely none of the organisms of decay, bacteria, etc. It must contain no ammonia or nitrous acid, and less than one-tenth of one per cent. of nitrates, sulphates, and chlorides. It must not contain more than .04 per cent. of magnesia, and of course no poisonous metals.

Certain solid inorganic elements of food are absolutely essential to the well-being of the organism, for in their absence the tissue cannot be properly built up, nor can the processes in either the solids or the fluids of the body go on. But for the constant renewal of these inorganic or ashy constituents of the body, not only would the characteristic activity of gastric and pancreatic juice and bile sooner or later be negated, but some of the inorganic materials already existing in the tissues would be seized upon by the various acids—uric, sulphuric, etc.—which are constantly developed in the retrograde metamorphosis of tissue and be excreted as salts, with a resultant loss of the normal degree of alkalinity of the juices of the body and finally death. The presence of mineral constituents appears absolutely essential to the integrity of proteid matter, and their withdrawal entails a loss of most of its distinguishing characteristics. We find no coagulable proteid without its quota of inorganic salts, and these salts appear to be in a state of active chemical union with the albuminoid. Thus in the lowest organisms, as the amœba, we find an appreciable quantity of alkaline salts, notably phosphates. Casein also is a proteid body remarkable for the tenacity with which it holds incorporated with it a large amount of phosphate of lime. Now, inasmuch as these inorganic constituents of the body are constantly passing from the economy in the excretions, they must as a consequence be renewed. The full importance of these substances was first appreciated by Liebig, whose attention was directed to the subject by his studies in agricultural chemistry. Since the overthrow of his views as to the rapidity of tissue waste and repair the subject of the inorganic food-stuffs has not received the attention which its importance merits. The question of the amount of this form of food which is essential to the organism is as yet unsettled. Certain it is, however, that in earlier life relatively greater quantities of salts are needed, and that their absence from the food at this period produces results much more marked and immediate than would the same conditions in adult life.

In starvation there is a continual elimination of the inorganic salts, which is explained by the fact that these salts are constantly set free in the destruction of the circulating albumens with which they were previously in comparatively firm chemical combination. When, on the other hand, there is attempted the so-called salt starvation, viz., the administration of proteids, fats, carbohydrates, and water, all in ample quantity, but from which all existing salts have been removed, the excretions are marked by a nearly complete absence of the inorganic salts. The reason of this apparent anomaly lies in the fact that the salts which were combined with the albumens of the tissues and circulating fluids are by the normal disintegration of these albumens set free, but instead of being eliminated they enter into immediate combination with the newly-introduced saltless albumens of the circulation. This can endure, however, but for a relatively short period; for in such recombination there is an inevitable failure to unite of a portion of the salts, which are thereupon excreted, resulting in such a diminution of the ashy constituents of the body as ultimately to induce death.

Pigeons thus subjected to starvation by the withdrawal of all inorganic foods die in from thirteen to twenty-nine days, although abundance of the other food constituents may be given them. In twenty-six to thirty-six days dogs similarly treated are reduced to such a miserable condition that a continuance of the observation would mean almost immediate death. The characteristic symptoms of this species of starvation are muscular weakness and trembling, gradual blunting of the senses, with occasionally heightened reflex activity, and, finally, impaired digestion and death.

No well-marked changes are found in the bones of adult animals which have died under this regimen. But with young animals the case is different. Young pigeons of the same age have been fed with wheat from which the major portion of the inorganic materials was removed by maceration: to one series of these pigeons this wheat was given with distilled water; to another series was given the same wheat with brook-water, in which bits of mortar were allowed to stand. All the animals grew for a time, but those of the first series all died, exhibiting the symptoms of rachitis, while those of the second series remained to all appearances in good health. An examination of the bones showed that those of the pigeons receiving no inorganic salts contained full ten per cent. less of solid matters than did those of the normally fed. Apart from the absence of lime-salts in the food, diseases of the bone may supervene in young animals in which protracted diarrhœa or other digestive disturbances have prevented the proper absorption of inorganic foods.

Perhaps the most striking illustration of the necessity of this class of food-stuffs, and also of the disturbances resulting from a very slight diminution in the amount of inorganic constituents present in the economy, may be found in the recent experiments of Ringer. In these experiments minnows were placed in distilled water which was properly aerated. They died in a few hours. Minnows of the same age were similarly placed in brook-water and remained alive without any food for many days. An examination of the distilled water in which the minnows had so speedily died revealed the presence of minute traces only of inorganic bodies, which had evidently dialyzed out from the body of the fish into the surrounding medium,—a loss so slight as scarcely to be estimated, and yet sufficient to entail the destruction of the individual.

Examining now the inorganic elements of food somewhat more closely in detail, we find them to consist of the salts of the alkalies, salts of the alkaline earths, and of iron, silica, and fluorine in various combinations. There are also found in the examination several bodies which have been erroneously regarded as excreted inorganic food-stuffs, which are really products of tissue-activity. As instances in point may be noted the carbonates and sulphates of the urine, which proceed almost exclusively from the breakdown of vegetable acids and of proteid tissues respectively. The compounds of the several alkalines with chlorine and with phosphoric and carbonic acids are differently distributed, as was first noted by Liebig. Thus in the firmer tissues, as is notably the case in muscle, there is found a preponderance of salts of potassium, while in the circulating fluids and juices of the body the sodium salts are found in greater abundance. The salts of the alkalies are chiefly removed from the body in the urine, being scarcely to be found in the fæces of carnivora, and when found in the fæces of men and animals, on a mixed diet, they arise from the imperfectly absorbed foods. In diarrhœa, and in the semi-fluid excreta of many herbivoræ, they are present in notable quantity from the same cause. Under normal conditions the alkaline reaction of the saliva is due to the presence of salts of sodium; but in inflammatory conditions of the mouth-cavity the dominant salt secretions are those of potassium. This fact would seem correlated with the observation of Mannassein, that in fever the amount of the salts in the muscles is diminished, as a result of which there is excreted in urine three to four times as much potassium in fever as in health. A similar action is also observed in starvation.

The nature of food, and to a large extent the nature of its inorganic constituents, imparts characteristic reactions to the urine; thus vegetable foods as a rule contain a notable excess of the alkaline salts of potassium, and we accordingly find in the urine of herbivoræ a decidedly alkaline reaction. When, however, an herbivorous animal is placed upon animal food, as is the case with a sucking calf, or what is the same thing, a starving cow which is consuming its own tissue, the urine assumes an acid reaction, due to the presence of acid sodium phosphate. The rationale of the secretion of acid fluids is but imperfectly understood. Ralfe has pointed out that under the influence of a weak electric current a decomposition occurs between neutral sodium phosphate and sodium bicarbonate, both of which exist in the blood, with the production of the acid sodium phosphate and normal sodium bicarbonate. This view is in some measure confirmed by the repeatedly confirmed observation that an increased acidity of the urine occurs after the administration of the bicarbonates of potassium, sodium, and ammonium.

The importance to the economy of the carbonates, of the alkalines, and therefore the importance of fresh vegetable food from which they are most readily elaborated, must not be underestimated. To them is largely due the alkalinity of the circulating fluids of the body,

an alkalinity whose disturbance is inevitably fatal, and reduction of the alkalinity of the circulating fluid is difficult to attain: amounts of the root-acid have been introduced into the stomach which have absorbed and excreted without change what would have been more than sufficient to render all the solids and fluids of the economy acid, without marked disturbance. When, however, the foods capable of yielding carbonates, as the vegetable acids and the alkalies, are withheld there is a different result, the elimination of the acids constantly forming in the functional activity of the tissues is retarded, and when excreted they carry with them the salts of the body, with the ultimate production of the symptoms of scurvy. When, therefore, the alkaline constituencies of the economy are for a long time withheld we note diminished alkalinity of the circulating fluids, with dissolution of the red corpuscles, ecchymoses on the mucous surfaces of the heart and mediastinum, and fatty degeneration of the heart and general muscular system, and also of the glandular organs. The production of a free acid, viz., as hydrochloric acid in gastric juice, from an alkaline fluid, the blood, presents a problem of some interest. It has been explained by the double decomposition occurring between acid sodium carbonate and sodium chloride, with the resultant production of normal sodium carbonate and hydrochloric acid. Some observers would substitute calcium chloride for the sodium chloride in the reaction just given; but in any case the principle is the same. That the hydrochloric acid once formed should leave the blood for the stomach is not incomprehensible, for the diffusive power of this acid ranks among the highest. Such reactions as these are valuable accessions to knowledge and are very necessary steps in our approximations to ultimate truth; but why such reaction should occur in the stomach and not elsewhere is as yet unknown. Of the uses of potassium chloride but little is known. Sodium chloride, however, has been more closely studied. The infant at the breast receives daily on an average during its first year about 12 grains (.79 of a gramme) of salt. The adult undoubtedly takes proportionately more, and this excess can be regarded as of value chiefly as a condiment; that is, as a stimulant to appetite and digestion, which acts by pleasing the sense of taste. Salt when introduced into the economy, either by the stomach or directly into the veins, begins to appear in the urine within an hour thereafter. The maximum of excretion is reached in the third hour, and in eight hours it is all eliminated. A curious mutual relation exists between the salts of potassium and those of sodium: an excess of sodium chloride in the food produces an increased renal elimination of the salts of potassium. The converse also holds good, viz., an excess of potassium salts in foods induces a rapid excretion of sodium chloride to such an extent that intense salt-hunger is experienced. This is not felt by men and animals living upon a food relatively poor in potassium. To men fed, as are to a large degree the poorer classes in many countries, upon products of wheat, rye, potatoes, and the leguminosæ, all of which are relatively rich in potassium, salt becomes more than a condiment: it becomes an indispensable food, for it withdraws the potassium salts which otherwise—it would seem chiefly by their action upon the nervous system—poison the economy. Common salt in such proportions as the healthy taste demands is undoubtedly a valuable stimulant to the nutritive processes. All agriculturists agree that the herbivorous animals of the farm thrive better upon the addition of salt to their food. It is further well known that the withdrawal of common salt from the food of domestic animals induces many symptoms of impaired nutrition. We have already discussed the absolute necessity for lime-salts in young animals, but the extent of this need is surprising. The experiments of Soxhelet, Lehman, and Weiske coincide in showing that for the calf at ages of from two weeks to five months there is needed from 10 to 15 grammes of calcium daily. A large proportion of the lime-salts used in the human body are obtained from drinking water.

Iron, popularly regarded as a drug, is undoubtedly a food, for concurrently the iron in the tissues and fluids of the body is being separated from its inorganic combinations and eliminated while the fresh increments are being taken up from the food. Its avenue of elimination is almost exclusively by the fæces, though traces are to be found in the urine. Contrary to popular belief, the major portion of the iron of the human body is found, not in the blood, but in the muscles, even after their contained blood has been removed. It must, therefore, be borne in mind that the amount of iron found in the excreted matter is not a direct indication of the extent of the disintegration of hæmoglobin. The precise amount of iron which is needed daily by the average adult is not fully established, but it is evidently quite small. Perhaps the best approximation to the amount required may

be obtained from the analysis of the normal mother's milk. On this basis an infant during its first year uses daily three and one-third milligrammes of iron, or in other terms, a trifle less than twenty grains a year. In the healthy adult, in whom tissue-waste is not so pronounced, and with whom also there are no claims for the processes of growth, it is probable this amount will be fully sufficient if presented in the appropriate form for its proper assimilation. Silicic acid is found in very small quantities in bones, hair, and blood. It is supplied by many vegetable foods. Calcium fluoride is found in teeth and to a slight extent in bone. Fortunately for us, these inorganic foods, whose withdrawal, as we have seen, exercises such deleterious influences on the economy, are as a rule present in great quantity in the actual foods in a mixed diet. In certain foods, however, their proportion is much diminished; thus in the boiling of meats and vegetables a large quantity of these important foodstuffs is extracted. Indeed, one of the chief dietetical advantages of salads and uncooked vegetables in general is that these elements have not been removed.

There is a very rational and economical method employed in French family cookery which it would be well to employ in this country. This is a large pot whose contents is kept constantly at a gentle heat and into which is poured all the water in which meat and vegetables have been boiled. After some simmering down this extract, with some addition of flavoring, forms not only a good and appetizing soup, but retains as a food what otherwise would have been lost, viz., the inorganic food-stuffs whose value we have just considered.

3706 Locust Street.

ANTIPYRINE.

By Jos. Xav. Ziteke, M.D., Napoleon, Ripley Co., Ind.

WHILST perusing the last issues of several medical journals I observed more or less complete reports about the antifebrile action of antipyrine in several acute pyretic diseases. My own experience with the drug was quite satisfactory, and in no case was I disappointed in the expected results. During the last three months I had sufficient occasion to try it in two cases of acute lobar pneumonia, one case of traumatic pleurisy, one case of endocartitis in consequence of acute articular rheumatism, and, finally, in one case of nephritis following scarlet fever. In all these diseases antipyrine lowered always the temperature, as was expected, and only in one case (the last one) was a slight fall of temperature below normal observed.

As to antipyrine itself, it is a synthetically-prepared alkaloid, a derivate of chinoline, prepared by Dr. Knorr, of Erlangen. It is of white, or rather slightly yellowish color, easily soluble both in cold and warm water (one to five of the first, one to three of the latter). The taste is bitter, yet far less disagreeable than kaïrine, and easily corrected by the addition of a little sherry wine. It passes rapidly through the kidneys, and can be detected in the urine by the same test we usually apply for acetone, in suspicious new formations of carcinoma.

The first to attract attention to antipyrine was Filehne (*Zeitschrift für klinische Medizin*, viii., 1884), and soon other observers confirmed his statements, viz., Alexander (Über Antipyrin, *Breslauer ärztl. Zeitschrift*, ii.), Guttmann (Über die Wirkungen des Antipyrins, *Berliner klinische Wochenschrift*, No. 20, 1884).

Nearly simultaneously with these statements appeared the articles of Docent von Hofer, of the University in Graz (*Wiener Medic. Wochenschrift*, No. 47), and of Prof. Dr. Przibram, in Prague (*Prager Medic. Wochenschrift*, October 1, 15, and 22). Finally, a public lecture about "Antipyrin," held by Dr. Batek, first clinical assistant at the university clinic of the same city, before the College of Doctors, gave a full statement about the action of antipyrine in many diseases and the quite satisfactory results of its application (*Casopis ceskych lekarnv*, Nos. 47 to 52, 1884).

All these various statements of so many experienced pathologists agree in the one verdict, that antipyrine is one of our best antipyretics and has a future before itself; indeed, many of them consider it far superior to quinine in almost all febrile diseases, except intermittent fever.

In the administration of the drug the advice of Filehne was uniformly followed,—*i.e.*, three separate doses, at intervals of an hour. Some of the observers used only 1 grain per dose, whilst others administered for the first dose 2 grains, and for each consecutive one 1 grain. My way of giving the drug was 25 grains,—*i.e.*, something less than 2 grains for

the first dose, 13 grains for the second, and if a third was necessary, 10 grains. In the mean time no other antipyretic drug was used.

Permit me to observe here, that in the various statements published about antipyrine I find that many of the physicians did not use antipyrine exclusively, but gave in the same time tinct. of aconite, veratrum viride, salicylic acid, etc., and then attributed the final result to antipyrine alone. What kind of clinical and therapeutic value can such observations have? They are written but to be printed: and no benefit whatever can be derived from them by the practitioner, because it is impossible to say how much the aconite or veratrum were concerned in the fall of the temperature.

The result of this administration of antipyrine was, that nearly in every case even the highest temperatures were lowered; not suddenly and accompanied by a disagreeable shock to the system, but slowly and steadily, accompanied by a slight and beneficial perspiration. Many of the usual and discouraging symptoms, which in many instances become even alarming, were rarely present, and if present, they were so but in a nominal degree.

The following tables—one of pneumonia, the other of pleurisy, mentioned above—will show the fall and rise of temperature consequent to the administration of the drug:

Case I.—Ben. S., 16 years of age, previously healthy, while chopping wood fell down upon the sharp corner of a wood-pile and hurt his chest, between the sixth and seventh intercostal space, near the right axillary line. Called the second day.

Date.	Time.	Temp.	Pulse.	Resp.	Urine.	Note. Pleurisy (Traumatic).
Feb. 14.	9 A.M.	102.5°	135	45	Dark red; no albumen.	Administered at 9 A.M. 25 grs. antipyrine; 10 A.M., 15 grs.; 11 A.M., 10 grs.
"	4 P.M.	99 5	110	40		
"	9 P.M.	103.5	140	47		At 10 P.M. the same doses, with directions that as soon as the face begins to flush and the patient to become restless another dose may be given.
Feb. 15.	8 A.M.	99	115	40	Dark red, with brick sediment; black kernels; no albumen.	
"	4 P.M.	99	117	42		
Feb. 16.	A.M.	98.5	110	39		Antipyrine now administered twice a day: at 5 o'clock in the morning and 9 o'clock in the evening; always in two successive doses,—one of 25 grs., the other of 12 grs.
"	P.M.	99.5	112	39		
Feb 17.	A.M.	98.5	100	37	Lighter; less sediment; no alb; reaction acid.	
"	P.M.	100.5	102	35		
Feb. 18.	A.M.	99.3	98	32		Antipyrine stopped, and though pulse yet high, but weak, stimulating and absorbent treatment adopted.
"	P.M.					

Case II.—Charles S., aged 49. Pneumonia. Called the third day.

Date.	Time.	Temp.	Pulse.	Resp.	Urine.	Note.
March 11.	A.M.	103.4°	145	56	Dark; bloody; very acid; traces albumen.	Sputa bloody; excessive pain; sleepless; thinks he will burn up.
"	P.M.	99.7	115	50		
March 12.	A.M.	100.5	120	50		Antipyrine at 9, 10, 11 o'clock; per dose, 25 grs., 20 grs., and 15 grs.; also in the afternoon, 6, 7, 8 o'clock; at night at 1, 2, 3 o'clock,—*i.e*, three times a day.
"	7 P.M.	104	139	59		Antipyrine by negligence not given; given again at 8 P.M., 9 P.M., 10 P.M., then 6, 7, 8 A.M.; only twice a day.
"	11 P.M.	99	110	49		
March 13.	12 A.M.	100	105	47		
"	9 P.M.	100.2	108	48		
March 14.	A.M.	99.7	100	38		On the 14th only two hourly doses at each administration.
"	P.M.	100	105	39		
March 15.	A.M.	98.5	90	30		No more antipyrine given.

From these two tables it is evident that as soon as the administration of antipyrine was stopped the temperature at once rose, and with it the pulse and respiration; but if at the very moment in which the efficacy of the last dose was at the minimum another

dose was given, no difficulties were experienced and both the temperature and pulse were lowered. This lowering of temperature was not of the same degree in both the cases; for whilst in the case of the boy antipyrine was administered only twice a day, in the case of his father it was necessary to give it three times in twenty-four hours and always in three consecutive doses. No dangerous or alarming symptoms were observed in these cases, though the first doses given to the boy seemed to produce a kind of disgust, which could have brought forth vomiting if it had lasted longer and in a more intense degree.

Vomiting, which so often follows the administration of antipyretics, seems never to accompany the use of antipyrine, and in the few cases in which it has been observed must be rather imputed to other pathological conditions, as cerebral or spinal lesions, which in themselves always provoke vomiting as one of their most constant symptoms. In all such cases, whatever medicine may be given, it is instantly thrown up again, till a hypodermic method, or an injection per anum, is adopted. In all such cases antipyrine can be given, hypodermically (solution of 1 or 2 grains in water, 15 to 30 grains in warm water), quite safely. Many of the observers state that its efficacy, if administered in this way, is yet more conspicuous and of longer duration than if given per os.

In some cases abscesses were forming upon the spots of injection (viz., Alexander, Leyden, *loc. cit.*), which fact led Ranke to inject it per rectum, in a solution of 4 grammes of the drug (about 60 grains) in the usual quantity of warm water.

This method was adopted in a dangerous case of typhoid fever at the clinic of Prof. Eiselt in Prague, where neither nourishment nor medicine if given in the usual way was retained, and met with a splendid success. Some hours after the administration of the drug, not only the fever was lowered, but the vomiting also ceased.

Collapse, which so often accompanies kaïrine and makes its administration dangerous, seldom or never follows the administration of antipyrine. In one of my cases, where antipyrine was given for more than eight days in considerably large quantity, I observed that the temperature fell to 96° and remained so for several hours, though no other alarming symptoms were present. The pulse was full, the sensorium undisturbed, the respiration regular, and the patient was always ready to take the offered nourishment. Hence I think that this fall of temperature, which sometimes follows large doses of antipyrine, and which was duly observed also by Docent von Hofer, Dr. Batek, Prof. Przibram, and others can hardly be called a collapse, as all the pathological signs of collapse are usually wanting, and because the temperature after having been low for several hours begins to rise to its normal stage again.

The sweating stage, which is so often observed in the wake of kaïrine and other drugs, is of no consideration after the administration of antipyrine. Sometimes it may be observed, yet it is usually the case in such diseases in which hyperhydrosis is one of the most common symptoms. In such cases small doses of agaricine or of atropine if administered are able to check the excessive sweating.

Finally, as to the exanthematous symptoms which follow large doses of other drugs, they were also observed after a prolonged use of antipyrine. The eruptions were of widely different shape and form, some resembling measles, others scarlatina, or even the common form of urticaria hæmorrhagica. In some cases, however, it is impossible to lay the exanthema at the door of the drug, whilst in others it is without the slightest doubt its effect. In such cases, however, the exanthema usually disappeared as soon as the administration of the drug was ceased.

From all this we can derive the one firm conclusion, that in antipyrine we have found a powerful antipyretic, very valuable in the treatment of the many acute febrile disorders, because its action is sure and because its administration is far more safe than that of many drugs now used by the profession.

REPORT OF A CASE OF ACUTE ARSENICAL POISONING.

By S. M. Ward, M.D., Ellenville, N. Y.

I DID not see this patient until about two hours before her death. The attending physician, Dr. J. J. Ward, furnished me his notes, and to him I am also indebted for the history, the patient having been under his charge at different times for the past three years. L. M., a young woman of 27, has suffered for many years with occasional attacks of melancholia, probably produced by her not being "in harmony with her environment" and menstrual irregularities. For the past eight weeks she had been attending a Business College, intending to become a book-keeper.

She became somewhat discouraged, and on June 14 returned to her home and resumed her place as housekeeper for her father. The latter, who is a man of keen observation, noticed that she was becoming melancholy again, and endeavored to cheer and comfort her, but to little purpose. Neither at this time nor at any other had she discussed the question of suicide at home or among her acquaintances. On the forenoon of June 15 she told her father that she was not feeling well and would go to her room and lie down. At ten o'clock (A.M.), according to her story, she swallowed a half-teaspoonful of commercial arsenic dissolved in water (thirty grains). She then disrobed and lay down. This arsenic had been in the house some seven or eight years, having been purchased to kill rats. She and her father had often noted the fact of its being in the house, and had often discussed the advisability of throwing it away, but not of late.

At 11.30, an hour and a half after taking the drug, if her statement is correct, she vomited and again lay down. At noon her father knocked at her door, and was told that she was not well,—was no better. During the afternoon she vomited several times, and her bowels moved once very copiously, the matter being very offensive. The time could not be definitely ascertained, but was probably near four o'clock. She vomited again, and her bowels moved again—matter colorless and odorless—before 5.15, at which time her father entered her room. Noticing evidence of a sudden illness he made some inquiries, and was told that she had taken the arsenic, as above stated; that she was "tired of living," and "wanted to die." Dr. J. J. Ward was called. He found her suffering some pain in the epigastrium, thirsty; there was suppression of urine, diarrhœa as noted, and some vomiting; her mind was clear, respirations normal, and pulse very rapid. The usual remedies were employed and opiates cautiously exhibited. The doctor remained with her until nine o'clock. When he left there was less pain, occasional vomiting; the matter ejected at one time looked as if it contained some of the mucous coating of the stomach, but for the most part was watery or "bilious;" a movement of the bowels, still odorless and colorless (once tinged with the iron that had been given), occurred once an hour, or thereabouts; respirations normal, mind clear, and pulse weak and fast. Alcoholic stimulants were given in milk, and the other treatment continued. Small doses of opiates p. r. n. She was next seen at 6 A.M., June 16. During the night there had been but little vomiting or diarrhœa, pain less, respirations still normal, but pulse hardly discernible at the wrists, hands and face cold, somewhat cyanosed, and the latter slightly covered with a cold sweat; mind clear. She was seen again at 8 A.M. Pain was now more pronounced, and she was given hypodermically sulphate morphine, gr. $\frac{1}{12}$, sulph. atropine, gr. $\frac{1}{120}$. Stimulants pushed. The reporter of the case saw her at 10.15, when her condition was about the same, except that pain was absent. Hot applications and sinapisms, atropine and whiskey hypodermically were continued. Gradually her heart beat less and less steadily, the cyanosis increased, and she died at noon, without a struggle.

My object in reporting this case is to place on record a case of undoubted arsenical poisoning which exhibited symptoms somewhat puzzling, taken without the testimony of the patient. It seems as if the poison, from the beginning, had spent its force on the organs of circulation, and that the state of collapse was not due to exhaustive discharges from stomach or bowels. This, to me at least, is a new effect of arsenic.

June 18, 1885.

A CURIOUS CASE OF BELLADONNA-POISONING.

By G. J. Preston, M.D., Baltimore, Md.*

THE following case may prove interesting as showing what varied features belladonna-poisoning may assume, and how widely the symptoms may differ from those usually given in the books.

I was called in haste to see Mrs. D., and learned that for a day or two she had been suffering with pain in the back, and had experienced some difficulty in voiding her urine. She had summoned a physician, who had given her a small bottle of medicine, with directions to take 6 drops; her husband thought she had taken sixty. Soon after taking the medicine she became unconscious and began to have convulsions. I saw her about five hours after the dose had been swallowed. Insensibility was complete, face pale, skin soft and rather moist, and extremities cold. Her pulse was only 80 and fairly strong, though at times, especially after exertion, it became more rapid and weak; respirations easy and natural; pupils insensible to light

* Professor of Practice of Medicine in the Baltimore Polyclinic.

and dilated, though not widely. At intervals of about fifteen minutes she had rather severe clonic spasms lasting only a few moments, at which times her pulse became very rapid. Upon examining her tongue and mouth, they seemed rather dry, but not very markedly so. There was continuous carphologia and very marked subsultus tendinum. She had passed her urine several times in the bed.

A large dose of bromide of potassium was administered, which quieted the convulsions, and alternate hot and cold water with applications of mustard. She reacted slowly, and when seen the next day was very weak; had great vesical tenesmus; her bladder was kept carefully emptied by the catheter to prevent any absorption. The tongue was swollen and dry, and the patient articulated with great difficulty. Her mind was wandering for a day or two after the poisoning, and it was not until several days had elapsed that she could give a succinct account of herself.

Opium was given freely after the more acute symptoms had subsided, but produced very little effect. The condition of the heart and respiration did not call for its use in the early stage of the case. The patient was confined to bed for about ten days.

This case, I think, could not be diagnosticated from the symptoms, which were so at variance with the known action of belladonna on the heart and respiratory system.

The nervous manifestations were the most typical features of the case, the dilatation of the pupils being slight and the dryness of the throat not very noticeable. This latter symptom in an unconscious patient is not very appreciable. There was no sign of a rash, which was looked for carefully. The amount of atropinæ sulph. taken must have been between one-tenth and one-sixth of a grain.

APERIENT MINERAL WATERS IN DISEASES OF THE EAR, THROAT, AND CHEST.

By Laurence Turnbull, M.D., Philadelphia.

IN my work* on diseases of the ear there is the following statement, which I published in 1872, and which I have confirmed by long and careful experience: "In severe catarrhal inflammation of the middle ear the bowels will frequently be irregular, and the patient feels much relieved when their action is promoted by laxatives, or stronger saline purgatives, suited to the circumstances." The regular use of mineral water, especially when indicated by constitutional ailments, is likewise attended with benefit, and I have derived very satisfactory results from the use of the water of the spring of "Friedrichshall." Other aperient waters I have employed in special cases with success, as Oak Orchard, Congress, Bedford, and the sulphur waters of this country; also the Bohemian and other waters containing sulphate of magnesium; but, like my friend Dr. Ernest Hart, and Prof. Henry Thompson, I find that while mineral waters containing the sulphate of magnesium are very useful as a purgative, they are deficient in some of the most important qualities of a saline alterative, owing to their deficiency in chlorides. The great advantage of the Friedrichshall water is that it will not irritate the bowels, nor is it at all necessary to increase the dose; it retains its activity, and the dose can even be slightly diminished and yet retain its laxative character.

The question may be asked, How does the Friedrichshall water act in diseases of the ear? In all acute and chronic affections of the ear the general health is more or less impaired, and to relieve this the health must be restored to its normal condition, and not until then can the local disease be treated with success. Now, we know the physiological action of Friedrichshall water from the careful investigations of Prof. Mosler,† on the effects of the different doses of the water upon the frequency of the pulse and respiration, temperature and weight of the body, the evacuations, the specific gravity, reaction of the urine, etc. His conclusions in brief are as follows:

"Friedrichshall water improves the general health, increases the appetite, relaxes the bowels and the urinary secretions, and carries off waste products."

Von Mering, of Strasburg, has found, by an exhaustive examination, that this water has a remarkable depurative influence in promoting tissue changes in the body, and in all chronic affections of the ear there is almost always a deviation from the normal condition in the skin, mucous membrane of the middle ear, and the fibrous and nervous tissues. In a considerable number of cases of tinnitus aurium, caused by an excess of blood in or about the ear, involving the labyrinth,

* Clinical Manual of Diseases of the Ear, p. 233. By Laurence Turnbull, M.D. J. B. Lippincott Co., Philadelphia.

† Archiv des Vereins für gemeinschaftliche Arbeiten. Pamphlet, pp. 16. London, 1885.

which has received the term plethora, I have found the Friedrichshall water a most admirable remedy, provided the individual gives up all stimulants and persists in the prolonged use of this agent. It also acts on the local catarrhal conditions which produce deafness, in which the pathway to the middle ear is involved, and in which there is frontal headache and a more or less copious naso-pharyngeal secretion blocking up the Eustachian tubes.

In the so-called torpid form of scrofulous disease of the ear which produces deafness by swelling of the glands in and about the ear, with more or less otorrhœal discharge and eczema, I have treated chronic cases by moderate doses of the water for weeks, with out-door exercise and good diet. Local treatment has also to be employed, such as weak solutions of nitrate of silver, lead, and zinc, ointments of yellow oxide of mercury and oil of tar.

Incidentally the same treatment of the ear is applicable to the throat, for they are in such close relationship and cannot be separated. The same reasoning can be applied to the diseases of the chest. I can testify in my own person and in the case of my patients as to the good effects of this water, with slight change of sea-shore air, in bronchial catarrh, in the acute and chronic stages, when associated with another chloride, that of ammonium, in 10-grain doses three or four times a day. The alterative aperient and diuretic effects of the water, combined with the extra chlorides, relieve the viscid expectoration and cough, and the emptying of the intestine considerably facilitates the action of the lungs and heart by the free ascent and descent of the diaphragm. A few cases will illustrate this condition.

Case I.—C. T. L., aged 64, a physician, was attacked during the winter of 1884 with severe bronchial catarrh; there were bronchial râles all over the chest and some dulness in the interscapular spaces; the cough was persistent, with copious expectorations of yellow pus and mucus; appetite impaired and digestion deranged; bowels so constipated as to produce piles; there was almost constant irritability of the heart. Various remedies were tried, and the only agent which relieved was quinine through the day, chloride of ammonium mixture and an occasional Dover's powder or paregoric, with tincture of aconite, at bedtime. The family becoming somewhat alarmed, a consultation was proposed, and Prof. Da Costa was called upon. The doctor made an examination of the chest and confirmed my diagnosis, and the only change he made was to increase the chloride of ammonium, to be given in double quantity and more frequently. This was done, still the patient did not receive entire relief from his expectoration and cough and irritability of his heart until I placed him upon the daily use of the Friedrichshall water.

Case II.—L. P. S., a lady, aged 30, of a nervous bilious temperament, of high cultivation and refinement, who has gone through great mental trials during the winter of 1884, up to the month of May was a great and constant sufferer from lumbago, intense and distressing flatulency, constant disposition to nervous gaping, with insomnia, and irregular action of the bowels. She had been treated with various tonics, quinine, iron, nux vomica, and sedatives and nervines, and with all the remedies for acute rheumatism, but with only temporary benefit. In May, 1885, she was placed upon the use of small doses of the Friedrichshall water.

May 27.—I visited her in the country, when she stated that her back was free from pain, appetite good, but still did not sleep very well; continued treatment.

May 29.—Returned from the country, able to sleep well and much improved; continued treatment.

Case III. *Nervous deafness from congestion of the labyrinth and exhaustion.*—Mrs. A. P. C., aged 41, Chester Co., Pa., applied, May 28, with profound deafness of left ear; voice had to be elevated, only hearing at four inches in right; tuning-fork best in contact with bone of the mastoid; has had at time pain in back of the head; the tinnitus is like water roaring in the distance; membrana tympani, right, opaque in layers; left, the same, and sunken; Eustachian tubes open by Valsalva method; nasal passages hypertrophied; duration, four years; suffered from malarial fever and rheumatism. Hereditation; mother, two sisters, and an uncle deaf; one sister, deaf, having died from brain-disease. General health fair, but of a very nervous temperament; complications, flooding after miscarriage; deafness always worse after fatigue and exhaustion.

Diagnosis.—Otitis media plastica. A rheumatic and nervous constitution.

Treatment.—Sol. strychnine after meals, and a wineglassful of Friedrichshall water, with as much hot water with a little lemon-juice before breakfast.

June 11.—Much less headache and feeling better, her general health improved. In-

creased the dose of both medicines, and cleansed the orifice of the Eustachian tubes, which contained mucus, with improvement of the deafness, by the use of inflation by the Politzer air-bag, etc.

CASE IV. *Chronic catarrh of the middle ear, perforated septum, naso-pharyngeal disease, and ozæna.*—M. H. A., aged 65, Huntingdon Co., Pa., applied, May 25, 1885, for treatment of deafness; the voice only heard when much elevated; a clock of twenty-five feet heard by left ear six inches, right, thirteen inches; no discharge and no pain; meatus dry and free from cerumen; membrana tympani, right, sunken, with posterior adhesion and striated deposit; Eustachian tube filled with mucus; suffers at times with vertigo; has constant dropping from nasal passage; enlarged tonsils in right side with removal of left; elongated uvula, which causes cough at night, with suffocation; perforated septum, with diseased bone; ozæna, with disagreeable odor.

Duration, two years; was slightly deaf before; had an operation performed; constitution feeble and dyspeptic; suffers from nervous pains and rheumatism; there is no appetite, and catarrhal conditions of the stomach, with torpid liver, and looks pale and anæmic.

May 29.—Painted the uvula and soft palate with four per cent. solution of hydrochlorate of cocaine and removed the redundant portion, which gave her but little pain; directed the application of sol. phénol sodique to nose and throat, and directed the Friedrichshall water to remove the offensive matter swallowed through the night and relieve chronic gastric catarrh due to the irritating secretions and debility.

CASE V. *Perforated membrana tympani with congestion from plethora, etc.*—Miss M., aged 27, from New York City, suffering from pain in the nape of the neck and congestion of the middle ear, and perforation of the membrana tympani almost healed, and slight discharge. There is a disposition to desquamation of the epithelium; painted the parts with a solution of cocaine and applied powder of iodoform to the edges of the perforation; touched ulcer in the throat with persulphate of iron; applied powdered boric acid and cocaine to nose, and directed the Friedrichshall water to relieve congestion, etc.

CASE VI.—Mrs. W. B. M., aged 36, consulted me, June 2, 1885, with the following history: Since the age of 19 she had been a sufferer from asthma, with cough. She had employed various agents recommended by friends and had been under treatment by all the "pathies," but with only temporary benefit. None of them had relieved her paroxysms promptly. She had taken from the regular members of the profession inhalations of various agents, the fluid and solid extract of grindelia robusta and lobelia, hypodermics of morphine; internally, chloral and iodide and bromide of potassium. When she spoke she had a peculiar nasal voice, and had also more or less catarrh of naso-pharynx. The attack had existed for one week before I was sent for and all the usual remedies tried, but with no benefit. When I visited the patient she was sitting in a chair bent forwards suffering the utmost distress in her efforts to breathe, and begged to be relieved, stating she had not been able to lie down and had had no sleep for almost the entire six days, except for five minutes in her chair.

Almost all of her attacks were the result of cold, commencing in the head with sneezing. On examination of her chest by percussion it was drum-like all over, from dilatation of the pulmonary alveoli. On auscultation the chest was full of loud sibilant and sonorous râles, with fine mucous râles. On examination of the nasal passages I found congestion of the mucous membrane of the middle turbinated bones.

I directed two per cent. solution of hydrochlorate of cocaine, which was applied to the nostrils and throat; also directed extra stimulation and nourishment; to employ cubeb lozenges for bronchial inflammation every hour.

June 3.—Visited her this morning and found her in bed sleeping quietly and soundly, and had to be wakened up by touching her. The asthmatic breathing was gone, and she had slept all night, after twice applying the solution. There were still the râles in her chest, and she complained of her persistent cough. I applied freely to each nasal cavity the cocaine, and directed the following mixture for her cough:

℞ Syr. scillæ,
Syr. ipecac., ää f℥ss;
Syr. prun. virgin., f℥ii;
Ext. hyoscyami, gr. ii.
Sig.—A teaspoonful every three hours.

The two per cent. solution of cocaine I then directed her to use by means of an atomizer, with two parts of cold water, and inhale the spray into her lungs, but not to swallow it.

June 4.—Cough still troublesome, but free

from asthma; added to the cough-mixture morphine and lac asafœtidæ.

June 5.—The patient had a good night; slept soundly; no pain; stated she had expectorated a small quantity of bright blood; tongue cleaning after blue-pill and Friedrichshall water.

She informed me that she had used two boxes within five or six days, "Hinrod remedy," with other means, before she sent for me, and that the attack was the most severe she ever had and the quickest relieved. Continued visiting her until the 9th of June found her entirely free from asthma and cough, having slept the entire night. I have discharged her, giving her some instructions in regard to the use of the spray if she should have any return of her attack; to continue the use of the Friedrichshall water.

1502 WALNUT STREET.

ON THE ANÆSTHETIC ACTION OF APOMORPHINE.

LUDWIG and BURGMEISTER have experimentally demonstrated that the anæsthetic action of apomorphine equals, as far as the eye is concerned, that of cocaine (*Centralblatt f. d. ges. Therapie*, May, 1885).

After the instillation of a two per cent. solution of crystallized muriate of apomorphine (Merck's preparation) in a quantity of 6 to 18 drops, so complete an anæsthesia of the cornea and conjunctiva resulted within ten minutes that irritations of every kind provoked neither response nor any reflex activity. The animals experimented upon were cats, which are well known to react quicker on irritation of cornea or conjunctiva than rabbits.

The anæsthesia lasted usually five to ten minutes. In one case only the animal retained impaired sensibility for one hour.

Applied on man, apomorphine produces a passing, though sufficiently marked injection and pain of the conjunctival sac. Mydriasis always attends the exhibition of this instillation.

Salivation and vomiting were so invariably noted in animals that these untoward effects were regarded as constant attendants of the application of apomorphine.

To summarize the results obtained on man, the drug was found:—

(*a*) To render the cornea and conjunctiva anæsthetic within ten minutes after the instillation of 6 to 12 drops of two per cent. solution.

(*b*) To be painful and irritant.

(*c*) To produce moderate mydriasis and marked nausea.

(*d*) To cause xerosis (*i.e.*, diminution of the glandular secretion).

If it be possible to obviate these untoward effects of apomorphine, the drug would be likely to receive a direct therapeutic consideration not unlike cocaine.

THE TESTIMONY OF A PHYSICIAN AS TO THE ANÆSTHETIC PROPERTIES OF COCAINE.

THE personal experience of a physician subjected to an operation on the eye under the use of cocaine must, of course, furnish a valuable evidence as to the exact worth and clinical applicability of this drug. MR. WILLIAM COPELAND states in the *Lancet*, May 23, 1885, that he was subjected to the operation on a cataract under the influence of cocaine, and he states that he can truthfully affirm that the whole affair was painless, and that the cataract was removed without pain; that he has had very little pain or discomfort since, and a little more than a fortnight after the operation could see objects distinctly, make out words of small print, and was steadily improving. The solution of cocaine was applied to his eye three times, at intervals of five minutes before the operation, and not only the preliminary incision was completed without pain, but also the excision of a small portion of the iris; thus seeming to prove that cocaine does actually produce complete anæsthesia of deep-seated parts. Although, of course, we have had plenty of satisfactory evidence of the value of cocaine before, none seem so conclusive as the above.

REMARKABLE SURGERY.

A BERLIN secular journal gives an account of a singular feat of surgery performed recently by PROF. BERGMANN, of that city. Two cases presented themselves simultaneously to the professor's surgical clinic, one a necrosis of the humerus and the other an amputation of the femur. The necrosis of the humerus called for an extensive removal of dead bone-tissue, which Bergmann supplanted by a large piece from the amputated femoral bone. Perfect success attended this certainly unique surgical procedure.

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EDITED BY
HORATIO C. WOOD, M.D.,
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ROBERT MEADE SMITH, M.D.,
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Leading Articles.

DIARRHŒAS.

As the season is upon us in which diarrhœas are abundant, it has seemed to us that a few remarks concerning their treatment may not be amiss. Of course we do not intend to give our readers a lecture on so familiar a subject as this, but there are certain points which we think are not generally appreciated by the profession, although they are not novel. The first of these is the value of sulphuric acid in the treatment of diarrhœas of relaxation. Many years ago we learned from the late Prof. Francis Gurney Smith the value of this remedy, especially in combination with the extract of hæmatoxylon. The following prescription we have tested almost innumerable times. It makes a very agreeable and efficient mixture, and may be given if necessary every two hours. Of course it should be varied, especially in the opium it contains, to suit individual cases.

℞ Acid. sulphur. aromat., ʃʒiii;
Extr. hæmatoxyl., ʒiii;
Tr. cinnamon.,
Tr. opii camph., aa ʃʒiss;
Syr. q. s. ad ʃʒvi. M.
S.—Tablespoonful, as required, in a little water.

A second remedy, still less frequently used than sulphuric acid, but of great service in non-inflammatory diarrhœas, is carbolic acid, or, perhaps preferably, creasote. This remedy is especially useful in cases of lientery, with which there is such excessive nervous irritability of the bowels that food when taken passes right through. But it is also often very serviceable in ordinary summer diarrhœas. A very valuable combination, useful especially in sudden violent attacks, is afforded by the following prescription. It may be administered every half-hour at first; of course care must be exercised not to give the maximum dose too frequently.

℞ Chloroform., ʃʒss;
Ol. caryophylli,
Creasoti, aa ʃʒi;
Tr. opii, ʃʒss. M.
S.—Shake well. Dose, 20 to 30 drops.

In some cases, especially of more chronic or persistent diarrhœas, of which we have been speaking, where there is excessive acidity of the intestines, a combination of creasote with chalk or bicarbonate of sodium is very useful. Not rarely the addition of the creasote to an ordinary astringent cough-mixture affords excellent results.

In regard to dysenteries, there are only two remedies which have in our hands given satisfactory results. One of these is calomel and the other ipecacuanha. Of the two the vegetable drug is the more universal in its application, although in the sporadic dysenteries, as seen in this climate, calomel is usually efficient. The objection to the use of ipecacuanha is the distressing vomiting which it is so prone to produce. The amount of vomiting is, however, very greatly affected by the method of administration. Some practitioners are accustomed to begin the treatment of dysentery by a large dose of the ipecacuanha in powder and endeavor to obtain tolerance after repeated vomiting. We have found that in many cases vomiting can be altogether avoided and the desired results achieved by giving the ipecacuanha in doses of 5 grains every half-hour, in pill form in combination with opium, or, better, by preceding each pill fifteen minutes by a dose of opium. In very bad cases with pronounced so-called bilious symptoms,—*i.e.*, excessively-coated tongue, epigastric tenderness or sense of weight, sick stomach, and vomiting,—it is probably preferable to begin the treatment by giving the 5-grain pills every fifteen minutes until free vomiting is set up.

ON THE MILK DIET IN HEART-DISEASE.

THE great popularity which the so-called special cures, such as the milk-whey, wine, kumyss, or mineral-water cure, have long enjoyed abroad has recently led the American profession to clinically test their medicinal work. While their beneficial influence in certain pathological conditions, especially in organic lesions attended by constitutional depression, cannot be denied, they usually fail to sustain the reputation of specifics with which they were ordinarily invested abroad. It seemed, in fact, as if even in Germany, the very home of these numerous cures, they were gradually disappearing from the field of practice. Within the most recent period, however, they have again come to the front, and seem to have lost none of their ancient prestige.

The new light which the pertinent researches of Dr. W. Schnaubert (*St. Petersburger Med. Woch.*, No. 5, 1885) have thrown on divers and important questions relating to indication and effect of the milk diet in heart-disease induces us to place before our readers a full abstract of that paper.

The first requisite is a strict adherence to a definite plan. It is best to begin with small doses of skimmed milk, taking as much of the latter as the daily (twenty-four hours) secretion of the urine amounts to. The milk is to be given in four doses daily, reaching the maximum quantity gradually. During the first days of the milk regimen every other liquid or solid food is to be invariably and totally excluded. The duration of the cure is various, though usually the success is proportional to the time of its observance. The principal features of the strict milk diet are promptness of action, precise influence over congestion and œdematous processes, avoidance of digestive troubles, and improvement of the general nutrition.

Even in the early stages of cardiac affections depending solely upon altered innervation (functional affections) the milk diet may be of service, though the most striking results, of course, are noticeable in compensatory affections marked by emptiness of the arteries and congestion in the veins. A distinct subjective improvement is usually observable after a couple of days; the dyspnœa grows less oppressive, the urine increases, and digestion proceeds more favorably.

Improvement in the cardiac action itself generally takes place within one week, and is soon followed by the disappearance of congestion and œdema in the various organs. In two weeks or later, according to the severity and extent of the affection, the circulation and secretion of urine both regain their former status. It is clear, though, that so complete a restoration cannot always take place, especially when complications of the liver, kidneys, or other organs exist. A peculiar feature of the milk diet is the precedence of improvement in the circulation to that of the heart itself, while under the employment of medicines (digitalis, caffeine) the regulation of the heart and the rise of the arterial pressure are first to appear.

Examining the effect of the milk diet on cardiac lesions more closely, we cannot fail but see that any actual effect on the anatomical alterations of the heart cannot be otherwise but very slight. Undoubted improvement, though, is obtainable in the fatty heart, and in acute compensatory enlargement of its cavities. In the actual fatty metamorphosis and cardiac hypertrophy the milk diet cannot render any important services. The same is true of valvular lesions, atheroma, and endocarditis. Hence the sphere of usefulness of the milk diet is nearly wholly limited to functional troubles, but is there certainly very clear. Its influence on the heart is that of a sedative and regulator, and manifests itself in a reduction of accelerated contractions, decline of the increased cardiac excitability, restoration of the normal rhythm, and disappearance of perverted or impaired sensibility (angina pectoris).

Another question is, How does the milk diet produce its salutary effects on the heart? We are not justified in allowing a direct action of the constituents of the milk—at least, of the potassium salts and lactic acid—on the heart, as small doses of milk act most promptly. Nor can we prove that a direct influence over the innervation exists. Though all observations seem to point to the fact that the milk diet exercises a direct sedative influence over the nervous system in healthy persons and in several general neuroses, such an action cannot be evinced in the compensatory affections. It can, however, be said with certainty that in the regulation of the cardiac action the diminution of reflex excitations chiefly emanating from the digestive system plays the principal rôle.

The favorable effect of the milk diet on the digestive organs is easily explained by the great digestibility of milk, diminution of fæces, and avoidance of gaseous generation in the intestinal tract. The restoration of compen-

satory action depends, on the other hand, upon the reduced supply of liquid food.

The increased urination is one of the direct primary effects of the milk diet, and shows the following peculiarities:

1. Small quantities of milk increase the quantity of urine; more than one hundred per cent. of the water of the milk is secreted during the first few days of the diet.

2. Under gradually-increased doses of milk the secretion of urine remains copious, rarely falling below sixty to seventy per cent.

3. In a rapid transition to large doses of milk the quantity of secreted urine does not rise, but may even sink.

The same effect of the milk diet as on the urinary organs, as to increased or decreased secretion, congestion, or œdema, we find also on other organs.

The increased urination depends upon a decreased congestion in the kidneys, which follows after the diminution of the general quantity of blood in the circulation. This decrease, again, is the result of the decreased supply. The milk diet can be called a urinary venous stimulant, in contradistinction to digitalis, which increases urination by raising arterial pressure. The restoration of the normal relations between the venous and arterial pressure is caused by the reduction of the abnormally high venous pressure through the effects of the milk diet.

To epitomize the author's conclusions, we can say that the effect of the milk diet in compensatory affections of the heart depends upon two factors,—1, the qualities of milk itself acting on the digestive organs, and possibly also on the nervous system; 2, the direct decrease of supply of a liquid nature, which results in a decrease of the general quantity of blood and of venous stasis.

As to the proper indications for the milk diet, Schnaubert advances the following points:

1. The milk diet is indicated in all cases in which the impaired cardiac action depends upon irritations emanating from the digestion tract, such as in dyspepsia, in gastric atony, gastric and intestinal catarrh. Exceptions are cases in which milk is ill borne (formation of excessive mucus in stomach, mania a potu, and worms), or in which it has no effect (cirrhosis of liver or tumors).

2. Another indication for the milk diet presents itself in the congested kidney and acute parenchymatous nephritis, in which cases the abnormally-small secretion of urine keeps up the interference of cardiac action.

3. In anæmia, general lipomatosis, and similar conditions of perverted or deficient nutrition producing a disturbance in the heart's action, the milk diet is equally well indicated.

4. Plethora and general neurosis often react on the cardiac action, and call then for the milk diet.

THE EXTERNAL TREATMENT OF NIGHT-SWEATS.

NICOLAI (*Gazette Médicale de Paris*, June 6, 1885) has obtained very good results in the case of night-sweats of phthisical patients, and others, by the employment of 8 grammes of chloral dissolved in two tumblerfuls of a mixture of equal parts of brandy and water. Every evening before going to sleep the patients are washed off with a sponge soaked with this solution, and if that does not serve to control the sweating, the shirt in which the patient sleeps is soaked with the same solution and then dried. The effect of this treatment is claimed to be especially satisfactory in cases of children, not suffering from phthisis, in whom night-sweats are present. Sometimes four rubbings with this solution are sufficient to entirely arrest the night-sweats for several weeks.

The tincture of belladonna is also highly recommended by Radakow for the suppression of the night-sweats of phthisis by external friction with a mixture of 4 grammes of the tincture of belladonna with 30 grammes of water, the friction to be made about two hours before the ordinary onset of the sweating. The fluid is to be poured into the palm of the hand and then rubbed over the entire body, with the exception of the head and the extremities, and the manipulation may be continued until the skin becomes quite moist. This treatment has been employed by Radakow in fifty cases, and he claims that it has not failed in a single instance, although sometimes localized sweatings appeared on the parts which had not been bathed with the tincture of belladonna.

THE USE OF MERCURIC CHLORIDE IN CHILDBED.

IT is about eighteen months since corrosive sublimate began to be used freely in Germany as a disinfectant in childbed, and very numerous reports concerning it have been

published in the German journals, and the evidence thus accumulated is enough to enable us to come to some conclusions concerning the value of the method.

There have been various objections urged against the use of corrosive sublimate as a puerperal disinfectant, but of these objections there are only two of sufficient moment to be considered. The first of these is the danger of poisoning of attendants or of the sick by the improper use of the solution through mistake. The colorlessness of the solution is, of course, the great source of danger. It can be obviated by adding five grains of the permanganate of potassium or one drop of a concentrated solution of methyl violet to every quart of the mercurial solution. A second objection is the danger of poisoning the patient by the absorption of the metallic salt. All cases of such corrosive sublimate poisoning may be divided into three groups,—those in which the symptoms are mild, those in which they are severe, but in which the patient recovers, and those in which death ensues. In mild cases the manifestation of the poisoning consists in a little diarrhœa, with perhaps some paleness or gray color of the gums, and which is readily controlled by a few doses of opium.

So far as our reading goes, there have been reported six cases of fatal poisoning, namely, one each by Stadfeldt (*Centralb. f. Gyn.*, 1884, No. 7), Lomer (*ibid.*, No. 14), Winter (*ibid.*, No. 28), Vohtz (*Hospitals Tidende*, 1884, No. 22), Schwarz (cited by Thorn, *Klin. Vorträger*, No. 250), Thorn (*Klin. Voträger*, No. 250). The symptoms have been remarkably uniform. There first appears abdominal pain, with tenesmus and diarrhœa; the discharges, in all cases, sooner or later becoming bloody. Vomiting usually comes on early, and there has also been almost uniformly a violent stomatitis. Great restlessness and anxiety have been prominent, and almost universally suppression of the urine has taken place before the fatal results which have occurred from collapse. The continuance of the symptoms has been from three to twelve days. Where a post-mortem has been obtained, inflammation and ulceration of the intestines, especially the large intestine, have been found. The peculiar degeneration of the renal epithelium, with a deposit of phosphate in the kidneys, which has been shown by Salkowsky and by Prevost to occur in dogs and rabbits poisoned with corrosive sublimate, was noticed in the case reported by Stadfeldt.

In the case reported by Thorn, septic peritonitis was found at the autopsy, and it is very doubtful whether death was produced by the corrosive sublimate, especially as the patient died in coma ten days after the use of the poison. In five of the cases intra-uterine irrigation had been practised; in three of these the strength of the solution was one part in a thousand; in one, one in seven hundred and fifty. The only case in which vaginal injections alone had been employed is that of Thorn, already spoken of, in which the cause of death remains doubtful.

Of the severe but non-fatal class of cases four instances have been reported, one each by Stenger (*Centralb. f. Gynk.*, 1884, No. 13), Maurer (*ibid.*, No. 17), Elsasser (*ibid.*, No. 29), Thorn (*loc. cit.*). In two of these cases only vaginal irrigation was practised. In one about 12 quarts of the solution (one part in a thousand) were used. In a second case, 500 grammes, or only 1 pint of the solution of the strength of one part in two thousand, was injected. In a third case, that of Elsasser, besides the twice-a-day use of the uterine irrigation with a one per thousand solution, 30 grammes of blue ointment were used externally, and about 18 grains of calomel internally. Poisoning came on the fourteenth day, ending in recovery after an illness of many weeks.

In order to determine the percentage of bad results by the use of the corrosive sublimate, it is essential to know the number of times which it has been injected. This, of course, cannot be accurately done, but in the *Deutsche Med. Zeitung*, May 18, 1885, Dr. K. Jaffè has collected ten thousand nine hundred and eighty reported cases of childbirth in which the corrosive sublimate has been employed. When it is remembered that a case of poisoning is almost sure to be reported, and that the great majority of practitioners do not put on record the instances in which they have employed the corrosive sublimate without poisoning, it will be seen that the percentage of poisoning must be very low. It is probably less than one in two thousand cases, the records showing one in eleven hundred cases. Further, when all those cases are removed in which intra-uterine irrigation was practised, the mortality from poisoning falls almost to zero. Moreover, in the first use of a method, the dangers are much greater than when experience has perfected knowledge.

Camillo Furst, in a paper read before the monthly meeting of the Medical Society of Steiermark on April 13, 1885, in summing up

the evidence as to the value of the mercurial method, says that "the clinical results of the use of corrosive sublimate in labor are on the average better than the use of any other antiseptic, and that even those authors who have had to complain of cases of severe poisoning almost universally agree in praise of the method," and in thus saying, Dr. Furst formulated the apparently universal opinion of progressive Germany.

After childbirth, corrosive sublimate is used for several somewhat different purposes. First, for the disinfection of the nurse and the doctor; second, for the disinfection of instruments; and, third, for the disinfection of the patient herself.

The most scrupulous cleanliness on the part of the nurse and the doctor is of the utmost importance, and with the half-trained nurses which abound in the United States, probably the most difficult part of the treatment will be found to be the persistent disinfection of the nurse herself. The hands should be frequently washed (at least as often as they touch the patient) in the solution of the corrosive sublimate, and after the use of the corrosive sublimate, rinsed in warm water, and then washed with soap and warm water. For this purpose the solution of corrosive sublimate may be made one in five hundred. Metallic instruments cannot be disinfected by means of the corrosive sublimate, as they are usually chemically acted upon by it, and for them carbolic acid, or some other disinfectant, is essential. Their use should, however, as far as possible be discarded in the lying-in room. Hard-rubber catheters, syringes, etc., should be substituted for the old-fashioned implements whenever it is possible.

It is very important to decide as to the strength of the solutions which are to be employed upon the person of the patient. The experiments of Schede (*Die antisept. Wundbehandlung mit Sublimat, Klin. Vortr.*, No. 251, S. 19 u. 35) indicate that the solution of less than one part in two thousand is of very little value as a germicide, and indeed that even this solution cannot be relied upon. The conclusion of Jaffè as to the strength of the solution and method of its use upon the parturient woman seems to be a correct one. It is that after ordinary births a simple vaginal irrigation should be practised, with one part of the corrosive sublimate in a thousand of water. Of this solution one pint may be used at a time, at first twice a day, and then once in twenty-four hours. After cases of complicated labor, especially where the hand has been introduced into the uterus, Dr. Jaffè believes that intra-uterine irrigation should be practised with the solution containing one part in two thousand. This irrigation should always be performed by the doctor himself. Not more than a pint and a half of fluid should be used, and especial care should be taken to see that the uterus is thoroughly contracted after the employment of the irrigation, because one of the great dangers of the intra-uterine employment of corrosive sublimate is the remaining of some of the solution in the uterus and its almost inevitable subsequent absorption.

In many cases the intra-uterine irrigation need not be practised more than once, but where there is retention of the placenta or the frequent formation of clots or any tendency to the development of septic symptoms, it must be repeated *pro re nata*.

It must be remembered that most of the cases of poisoning have occurred after the repeated and long-continued use of irrigation, and it is therefore proper to discontinue the employment of the corrosive sublimate so soon as circumstances will permit. When as much as nine pints in all of the solution (one in one thousand) have been employed even by the vaginal injection, the danger of poisoning becomes a factor to be very carefully considered. Such caution is made more important by the fact that usually the symptoms of mercurial intoxication have appeared with great suddenness.

There are certain conditions of the patient which contraindicate to a greater or less degree the use of corrosive sublimate. The existence of a high degree of anæmia or of general feebleness necessitates great caution. If nephritis, or even albuminuria without casts, has been observed during the pregnancy, much more if it be present at the time of the labor, great care must be exercised in the use of the corrosive sublimate. Almost all the cases of poisoning have ended in suppression of urine. It is certain that the metallic salt is eliminated by the kidneys, and during the process of elimination it must act upon their secreting structure as upon that of the intestinal tract. This is abundantly confirmed by the experiments of Salkowsky and Prevost, as well as by the records of the post-mortem room, which show that corrosive sublimate has an especially irritating influence upon the kidneys. If, therefore, a diseased kidney already exists, the mildest of poisoning with corrosive sublimate is very prone to have a fatal termination.

HOW SOON MAY AN OBSTETRICIAN RESUME PRACTICE AFTER EXPOSURE TO SEPSIS?

SINCE writing the editorial upon the use of corrosive sublimate in childbirth the *Journal of the American Medical Association*, July 4, 1885, has come to hand, and we have read in it with great pleasure an article by Dr. George F. French in answer to the question, "How soon after the exposure to sepsis may the accoucheur resume practice?" The common sense of the matter, which is plainly brought forward in this article, is that time is not the chief factor of purification; that provided the surgeon be pure it matters not how recently he was impure; or, in other words, if the surgeon be impure, it wots little how long since the impurity was acquired. Pasteur is affirmed to possess contagion-spores twenty years old and still active, and the coat of Hildebrandt is stated to have retained its contagion for a year and six months. On the other hand, an infectious discharge saturated with corrosive sublimate in a few moments becomes harmless. In regard to the method of self-purification, Dr. French employs the following:

"Particles of contagion most often find lodgment on our hands, and particularly under the finger-nails. It is always possible after the ordinary use of the nail-brush or knife to remove particles of dirt in which the microscope reveals living germs of possible infection. On this account I cut the nails short and swab under them with a blunt instrument covered with cloth and wet with some disinfecting liquid. I formerly used for this purpose a five per cent. solution of carbolic acid; but this made the sensitive flesh crack and pull away from the nails; I now use instead corrosive sublimate solution 1 to 2000. The five per cent. solution of carbolic acid, even in washing the hands, causes them to crack and chap so as to be an open source of infection to the operator. Before I adopted the swabbing under the nails I covered the interspace with collodion, the use of which I now reserve for hang-nails, cracks, and abrasions. All instruments are kept scrupulously clean as well as disinfected, and the nurse is regarded as one of the instruments."

We think that in addition to this, if there has been an especial exposure, the obstetrician, ovariotomist, or operating surgeon is bound to take a general bath and to change his clothes. The method which is said to be adopted by Volkmann, of putting on before each operation a long, newly-washed, linen coat and requiring his assistants to do the same, seems to have much merit. Prof. Martin, of Berlin, uses for the entire body a lotion of corrosive sublimate (1 to 10,000).

The following letter from Esmarch so tersely sums up the matter that we give it entire:

"If you have thoroughly disinfected yourself you can immediately enter upon obstetric practice. Time does not destroy septic dirt.

"ESMARCH.

"KIEL, December 5, 1884."

HÆMOGLOBIN PILLS.

THERE is an obvious tendency of modern therapeutists to introduce what may be termed physiological remedies,—*i.e.*, agents produced within the economy under normal conditions, such as peptone and blood. It would actually appear as if the clinical results obtained with these agencies sustain the theoretical recommendation which they undoubtedly enforce. In the last issue of the THERAPEUTIC GAZETTE we referred at length to Ziemssen's blood-regimen and its striking success. At present we have before us further data of his experiments in the same direction. According to the *Deutsche Medizinal Zeitung* (May 11, 1885), Ziemssen's success with hæmoglobin pills in chlorosis is attracting no common interest. These pills are prepared from ox-blood, are of the size of a hazel-nut, and weigh, aside of their chocolate coating, over thirty grains. The daily dose is 6 pills, which contain nearly 25 grains of hæmoglobin,—*i.e.*, ⅛ grain of iron. This apparently small dose is presented to the digestive organs in a form free from all irritative properties, and is no doubt quickly and easily absorbed, which cannot be said of the other preparations of iron, which are well known to often occasion digestive difficulties. The dose, besides, seems sufficient in view of the fact that our organism does not require a larger quantity of iron than $\frac{1}{12}$ grain per diem. Direct inspection (apparatus of Steinheil and Zeiss's instrument) proved a remarkably quick rise in the hæmoglobular percentage of the blood, leading of course to a general improvement of health.

THE SPLENIC BRUIT IN MALARIA.

ALTHOUGH outside the scope of our general editorial labors, the subject of a *bruit* in the spleen during intermittent fever

is one of such importance that we call the attention of our readers to it in order that during the coming malarial season observations may be made. We are not aware that this bruit has ever been heard by any one except Maissurianz, who reported it and its existence in No. 54 of the *Saint Petersburgh Wochenschrift*, 1884. It is said to be heard in the left side about the height of the tenth rib, and to be synchronous with the pulse. Dr. Maissurianz is stated to have demonstrated its presence in eight cases at the Michailow-Hospital. The enlargement of the organ must be decided and recent.

STATISTICAL RESEARCHES.

TO the English medical societies belongs the credit of having first introduced statistical researches on the largest possible scale, with the view of elucidating various topics hitherto regarded as *sub judice*. Everybody is familiar with the negative results these statistics gave in the great question whether or not tuberculosis be a contagious disease. It is, then, with natural interest that the medical world receives the results of analogous researches instituted in Germany, and first reported in the *Zeitschrift für klin. Med.*, vol. viii. No. 6. The four cardinal questions referred to are hereditary transmission of phthisis, its alleged contagiousness, its treatment, and, finally, the transition of pneumonia into consumption. About two hundred answers from private practitioners and hospitals were at hand.

In twenty-four cases hereditary transmission was established, while in forty direct contagion was made out. In these latter cases it was expressively stated that in twenty-five instances parents and sisters and brothers were free of phthisis; in six, the parents only; in two, sisters and brothers. Among the hereditary cases were several which entertained pretty clear relations with scrofula, blood-relationship, and mania a potu of the parents. The most important feature of hereditary transmission is the previous existence of a predisposition (scrofula and other nutritive defects), to the so-called phthisical habit. As to contagiousness of consumptions, the intimacy of social and domestic intercourse was found to be the deciding factor. Of forty cases of matrimonial relation, propagation of the disease occurred in twenty-three instances. Next comes the nurse of phthisical patients, who is subject to contagion; then persons who wear clothing previously worn by phthisical patients.

In fifty-seven cases an actual cure of consumption was established (?),—thirty-four belonging to the male and twenty-three to the female sex, twenty-two being hereditarily tainted.

The transition of pneumonia into phthisis was observed in eight cases.

The value of these statistical researches is too obvious to require any eulogy, further than saying that they are possibly the only avenues that lead to the truthful recognition of the many clinical topics still enshrouded in obscurity or uncertainty.

POISONING BY THE INTERNAL ADMINISTRATION OF CHLOROFORM.

IN the *New York Medical Record* for July 11, 1885, Dr. Llewellyn Elliott has tabulated fifty-seven cases of poisoning by the internal administration of chloroform. The chief value of this paper must be medico-legal. Its nature forbids its being abstracted to advantage, and we therefore content ourselves with mentioning it in order that our readers, in case of necessity, may know where to find it.

A NEW REACTION FOR DIGITALINE.

AT a meeting of the French Académie des Sciénces M. Ph. Lafon reported a new and accurate reaction for determining the presence of digitaline. It consists of a mixture of sulphuric acid and alcohol, to which a drop of a solution of perchloride of iron has been added. A trace of digitaline produces a beautiful greenish-blue coloration (*Le Progrès Médical*, June 20, 1885). This reaction is stated to be characteristic of digitaline. With fine patriotism, the author states that it permits of the establishment of a very distinct difference between the French products and the impure German imitations.

It is a pity that the formula for the test-solution is not given with greater precision, and that the test has not been applied quantitatively; and, in view of the various different forms of so-called digitaline which are now on the market, even if we exclude the "German adulterations," that the particular preparation for which this reaction is a test has not been more clearly indicated.

KAOLIN.

KAOLIN has frequently been mentioned in these columns as a coating for pills, particularly of potassium permanganate, but we find, from the number of inquiries made to us, that very indefinite ideas exist as to what kaolin actually is. Kaolin is a sort of clay which is the product of a decomposition of feldspar and quartz-rock, found in low, swampy ground, beneath the surface of the soil. Large beds of kaolin exist in Chester County, Pa., and Newcastle, Del., from which places nearly twenty thousand tons are mined and prepared, and then shipped to all parts of the country. It is prepared by simply washing with water and exposing to the air.

A JAPANESE COMPLIMENT.

ANY one who has made a tour of the world must have been convinced that bad art is cosmopolitan; and in the recent arrival of the *Sei I Kwai* we have evidence that even the heathen religion does not make a medical writer fastidious in acknowledging his moral obligations. The paper on bromide of ethyl arrested our attention in the same way in which an apparently familiar face sometimes fastens our perplexed gaze in a foreign crowd. Finally, we did make out why the Japanese lineaments seemed so familiar in that the original heathen—not Chinee this time—had appropriated *vi et armis* an editorial from a recent number of the THERAPEUTIC GAZETTE. We are delighted that the wisdom of the Orient should bear this tribute to the superior charms of our American editorial sanctum.

Reports on Therapeutic Progress.

THE SURGICAL ASPECT OF TUBERCULOSIS.

We regret that even what may appear a long abstract of this valuable paper, read by VOLKMANN before the Fourteenth German Surgical Congress (April, 1885), can do but approximate justice to both author and work.

Two great views embody practically our present state of knowledge of the clinical character and significance of tuberculosis:

I. Tubercular affections of internal organs are almost invariably attended by either a fatal issue or at least by great dangers.

II. Scepticism as to the infectious nature of tuberculosis and the specific and causative character of Koch's bacillus is gradually but unmistakably dying out.

The researches of the last decade have so materially increased the number of tubercular affections belonging to the domain of the surgeon that the latter confronts them at present almost more frequently than the physician. The principal tubercular affections, beginning with the tegumental and cellular tissues, are,—

1. Lupus, a genuine tuberculosis of the skin, marked by a peculiar tendency to local returns. Hereditary transmission plays no conspicuous rôle; the prognosis is at best not very encouraging.

2. Tubercular ulcerations of the skin (the scrofulous ulcers of older writers), occurring chiefly in young patients, and developing frequently secondarily from abscesses of lymphatic glands, joint- and bone-fistules. They yield almost invariably to surgical interference.

3. Primary tuberculosis and primary tubercular abscesses of the deeper cellular strata, chiefly of the intermuscular, parosteal, and para-articular connective tissues. They are rare, difficult to diagnose, and best treated by free incisions, exposure, and removal by scraping. Examples are the congestive abscesses in spondylitis (tubercular caries of the spinal column). [Volkmann cured a large number of these by free incisions, antiseptic washes, drainage, and compression, instituting the process of primæ intentionis.]

4. Another primary form is the cellular tuberculosis, occurring especially in the panniculus adiposus of small children. A number of firm flat knots form under the skin (gommes tuberculeuses), soon breaking down and attacking the skin, causing fluctuation and a blue-red color in the latter. Treatment, the same as under No. 3.

5. Tubercular abscesses, marked by the investment of a peculiar, violet-gray, opaque membrane, which has but few blood-vessels, and can be readily separated from the abscess itself. A diffuse penetration of tubercular infiltrations into the neighboring tissue is scarcely ever observed. The membrane described above occurring exclusively in tubercular abscesses, its presence can be taken as a diagnostic criterion.

Passing to the mucous membranes open to surgical interference, Volkmann spoke of the following tubercular affections:

6. Tuberculosis of the tongue, easily mistaken for cancer, and best treated by scraping or the thermo-cautery.

7. Tuberculosis of the gums and pharynx. Flat yellowish ulcers of the size of a pea, easily

mistaken for syphilis. The treatment is the same as intimated under No. 6.

8. Ozæna tuberculosa is not to be confounded with rhinitis scrofulosa, which is far more frequent and is merely a catarrhal condition.

9. Fistula ani has often a tubercular origin, and is then characterized by its tendency to form great quantities of fungous granulations, extended dissolutions of the mucous membrane, and undermining of the external skin. The treatment consists in free opening of the fistula, the scraping of the fungous granulations, the dissection of their margins from the skin and mucous membrane, tampons of antiseptic mull (iodoform-gauze). In rebellious cases cauterization with the hot iron will be found necessary.

In the urino-genital apparatus we find,—

10. Tuberculosis of the testes, bladder, ureters, and kidneys cannot be regarded as curable.

By far the most important class of tubercular affections belong to the bone- and joint-tissues.

11. All affections hitherto designated as caries of bones, scrofulous inflammations of bones and joints, white swelling, strumous arthritis, belong almost without exception to genuine tuberculosis. Volkmann regards the injection of iodine, carbolic acid, sublimate, and arsenic as little serviceable, but recommends incision and drainage, or the scraping out, if necessary, with the sharp spoon.

Among other methods of treatment we mention total extirpation of the joint (leaving the bony epiphyses intact) and resection of the joint (leaving the healthy parts of bones intact). Tuberculosis of bones is clinically represented as follows:

(*a*) Spina ventosa, consisting in a peculiar bottle-like swelling of fingers and toes, rarely of other bones. The affection occurs only in the first few years of life, and heals in spite of its multiple character without affecting form or growth of the bones.

(*b*) Tubercular ulcerations and necroses of the orbital portion of the superior maxillary, with following characteristic ectropia of the lower eyelids.

(*c*) Cold cranial abscesses.

(*d*) Caries of ribs.

(*e*) Spondylitis.

The lymphatic system is a prominent seat of the tubercular element.

The formerly so-called scrofulous inflammation, or cheesy degeneration of lymphatic gland, is a genuine tuberculosis. The degree of susceptibility of the lymphatic glands is variable, their order in this respect being as follows: Glands of the neck, cubital fossa, popliteal and inguinal glands.

Scrofula is a predisposition to tuberculosis, hence in scrofulous persons simple catarrhal inflammation of the glands frequently does not proceed toward resolution, but leads to a genuine miliary or bacillary tuberculosis, the glands enlarging, degenerating, and softening. Removal by the knife is by far the most satisfactory treatment of affected tubercular glands.

COCAINE IN THE OPERATION FOR INGROWING TOE-NAILS.

About the last use which we have seen recommended for cocaine is its employment as an anæsthetic for the operation of avulsion of ingrowing toe-nails. Dr. F. Peyre Porcher (*Medical News*, July 11, 1885) reports a case in which the instillation of a four per cent. solution of hydrochlorate of cocaine, from the point of a hypodermic needle upon the slightly raw surfaces on each side of the ingrowing nail of the big toe, was perfectly successful in producing complete anæsthesia; a rag wet with the same solution being kept pressed against the upper surface of the toe and three injections of the same solution being made subcutaneously at the base of the nail. Probably not more than ten or fifteen drops in all were received and absorbed. After the lapse of fifteen minutes the narrow blade of a fine-pointed pair of scissors was passed under the nail, which was divided to the matrix, when the two portions of nail were forcibly extracted without causing any suffering.

THE DISINFECTANT POWER OF WATERY SOLUTIONS OF CARBOLIC ACID.

Dr Gärtner, of Berlin, subjected a number of the best known specific germs to the action of carbolic acid and sublimate in order to ascertain their relative and absolute value as germicides. His researches included only such organisms as are of interest to the surgeon, viz., the two grape-cocci and the chain-coccus of pus, the osteomyelitic cocci of Becker, those of erysipelas, of puerperal fever, glanders, milzbrand (splenic fever), typhus, and diphtheria. The following table speaks for itself, the stars indicating partial death of the germs:

Disinfectant.	Carbolic Acid, 1 per cent.							Carb. Acid, 2 per cent.					Carb. Acid, 3 per cent.					Sublimate, 1 per cent.				
Time of Action.	8″	15″	30″	45″	60″	3′	5′	8″	15″	30″	45″	60″	8″	15″	30″	45″	60″	8″	15″	30″	45″	60″
Splenic fever	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Glanders	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal fever	*	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Streptococc. pyog	*	*	*	*	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Erysipelas	*	*	*	*	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Micrococc tetrag	*	*	*	*	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diphtheria	*	*	*	*	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Staph. pyog. alb	*	*	*	*	*	*	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Steph. pyog. aur	*	*	*	*	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Osteomyelitis	*	*	*	*	*	...	...	*	*	...	...	...	...	...	...	...	...	...	...	...	...	...
Microc. prodig	*	*	*	*	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Typhus	*	*	*	*	*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Meningitis	*	*	*	*	*	*	*	*	*	*	...	...	...	...	...	...	...	*	*	*	*	...

These organisms were all obtained by pure culture, and were invariably present in large quantities. The table shows that the influence of a three per cent. solution of carbolic acid, lasting but eight seconds, was sufficient to kill all germs which concern the surgical practice. —*Centralblatt für Chirurgie*, No. 24, 1885.

THE EXTERNAL APPLICATION OF SULPHIDE OF CALCIUM IN SMALLPOX.

Several years ago Surgeon C. J. Peters, of the British Army of India, experimented with sulphide of calcium as an external application in smallpox, and although the cases were few in number, his results were uniformly favorable. Led by the above-mentioned testimony, Dr. J. A. MacArthur (*Canada Lancet*, July, 1885) employed this method of treatment in a case of very severe confluent smallpox. The eruption covered the conjunctivæ, mucous membrane of the mouth and tongue, and he states that the face, neck, arms, and limbs were literally covered. There was low-muttering delirium, and the symptoms indicated extreme prostration and a speedy termination of the life of the patient.

The patient's face, neck, arms, elbows, and legs down to the knees were painted twice daily with the solution of the calcium sulphide, prepared by boiling a quarter of a pound of quicklime and half a pound of sulphur in five pints of water until reduced to three pints, when it is filtered and kept in glass bottles. The application was made with a brush, and care taken that none of it entered the eyes. The third day after application of the remedy, and the twelfth of the disease, the patient showed signs of improvement. The low-muttering delirium passed away. The swollen features assumed their natural human character, while the pustules showed signs of shrinking. There was no secondary fever, and at the end of the fifth day from the date of the application the pustules were literally shrivelled up, without giving out any of their fluid contents.

Another important feature noticed was the entire absence of itching or desire on the part of the patient to scratch. With the exception of a slight ulceration of the cornea of the right eye and a slight attack of pleurisy of the right side, the patient made a rapid and successful recovery; no pitting resulting from the disease.

TREATMENT OF TUBERCULAR ARTHRITIS.

Whether the so-called expectant or an active mode of treatment be more successful in the tubercular joint-affections has long been a disputed subject. Bidder's paper, published in the *Deutsche Zeitschrift für Chirurgie*, vol. xxi. Nos. 1, 2, though containing nothing new on the subject, forms a valuable review on this question. His views can be condensed as follows:

1. Expectant measures are not indicated in threatening or already existing tubercular arthritis. Local medication, bandages, and contrivances to fix the joint are to be included in expectant measures.

2. Active interference is greatly to be recommended. Prophylactic measures are equally valuable. If the disposition of a certain organ to tubercular affections is made out, a careful dietetic and constitutional medicinal treatment is indicated. The internal use of chloride of sodium persisted in for years or the benzoate of sodium used similarly are among the most efficient remedies for the purpose in question. If a tubercular focus actually exists near a joint, the former is to be destroyed by chemical or surgical inter-

ference. If, however, the cavity of the joint becomes affected, constitutional medication must be combined with surgical interference, such as opening of the joint, removal of the diseased synovial membrane or necrosed bony parts, resection, or amputation. The constitutional treatment has to be continued for a long time after.

PARALDEHYDE AS A HYPNOTIC.

Dr. C. C. Hersman has employed paraldehyde as a hypnotic in eleven cases in the West Virginia Hospital for the Insane (*Transactions of the Medical Society of the State of West Virginia*, 1885), but he does not seem to have succeeded in producing any good effects by its use. In only three cases did it seem to produce sleep, and in these not promptly; while in several instances violent headache was produced, and in some violent excitement persisted, in spite of large doses. From his experience, he does not regard it as a good hypnotic, although in some cases he has had some good and some bad results occurring with the same patient. He also noticed that the increased dose seemed to add to the bad effect.

THE TREATMENT OF CHRONIC BRONCHITIS IN CHILDREN.

In chronic bronchitis, pulmonary emphysema, with or without attacks of asthma, carbolized fumigations, fumigation of essences of thyme, or even of cologne-water, the internal use of the different balsams and arsenic, and cutaneous applications of various revulsives are the means which are employed with the best effect. M. Bouchut (*Revue Mensuelle des Maladies de l'Enfance*, June, 1885) gives the following synopsis of the treatment of chronic bronchitis in children which has proved most satisfactory in his hands:

1. Fumigations, as indicated above, night and day, in the chamber of the child.

2. Syrup of quinine, 300 grammes, with arseniate of sodium, 5 to 10 centigrammes. Of this mixture a tablespoonful is to be taken each day.

3. Cod-liver oil.

4. Tincture of iodine applied to the chest, and some vesicant on the arm.

5. Syrup of turpentine, one spoonful daily, and eucalyptus in the form of an infusion of the leaves.

By some such treatment as the above the author claims that children suffering from chronic bronchitis may be cured, even although they be greatly reduced and appear to be subjects for pulmonary tuberculosis. As diet, he recommends milk, the fatty vegetables, roast meats, goose-fat, and fat ham; and as drinks, the extract of malt, and the wine of quinine, or brandy and water.

THE USE OF OSMIC ACID IN PERIPHERAL NEURALGIA.

At the recent meeting of the American Neurological Association, Dr. George W. Jacoby, of New York, read a paper on this subject (*Medical News*, July 4, 1885).

The treatment of neuralgia by injection of a solution of perosmic acid in the neighborhood of the affected nerve was introduced by Neuber in 1883. He reported two cases, one of sciatica and one of trigeminal neuralgia, both cured after ten and twenty injections respectively. Eulenberg reports and tabulates twelve cases, of which three were cured, four more or less improved, five unaffected. The same observer records seven additional cases, of which four were cured. Reference was also made to the observations of Wölffler and Mercies. Dr. Jacoby made use of osmium tetroxide, OsO_4, known in this country as osmic acid. Perosmic acid, as it is called in foreign reports, is probably the same drug. He employs a one per cent. solution, of which ½ gramme to 1 gramme (5 mgr. to 1 cgr. of the drug) is injected into the connective tissue around the affected nerve as near as possible to the seat of pain. If the solution be exposed to the light for any length of time it becomes decomposed and discolored. Eulenberg says the discolored preparation may be still used, but in the author's experience it is inactive. The solution should be recently prepared and dispensed in a colored vial, a small quantity only being prescribed at a time. Following the injection a severe stinging pain is felt, which lasts but a few seconds. Occasionally there are swelling and puffiness over the seat of puncture. In many cases a hard swelling lasted several days. There is no discoloration except where the needle enters the skin. The experiments of Franklin show the action of osmic acid thus used upon the living animal. There is an inflammation of the connective tissue and muscular structure immediately surrounding the nerve, and the nerve itself is blackened, osmic acid having the same action upon living nerve-tissues as upon histological preparations. Dr. Jacoby reported eighteen cases,

three of them in detail. Eight cases were cured, two improved, and eight unaffected. Of the eight cures, five were cases of sciatica, all old ones. Of the eight unaffected, three were fresh cases and two were old. In one case of cervico-brachial neuralgia, treated with gratifying success, so far as the relief from pain was concerned, by injections over the musculo-spiral nerve, radial paralysis suddenly ensued. While it is true that an element of doubt existed, Dr. Jacoby attributed this to the injections. Arnozan calls attention to neuritis following injections of ether. In some of Franklin's experiments complete motor and sensory paralysis occurred in the domain of the nerves subjected to the treatment. Summing his experience, sciatica seemed the most amenable to this plan of treatment, and old cases afforded a better chance than fresh ones, contrary to the experience of Eulenberg. The pain following injection was almost unbearable in one case. This was opposed to the experience of European observers, who noted the absence of pain. Dr. Jacoby concluded:

1. That in osmic acid we have an agent serviceable in some cases of peripheral neuralgia.

2. That it is not an antineuralgic, and that its action is localized.

3. That it frequently fails where other agents succeed.

4. That it is dangerous to implicate a motor nerve in the injection.

On invitation, Dr. Sachs, of New York, who had been in Berlin during the progress of Eulenberg's experiments, said that the latter's experience had been only partially satisfactory. He had gained the impression that the treatment is unreliable in most cases. The only good results he had seen were in old cases, principally of sciatica. In Berlin no pain followed the injections. In New York they were very painful. This might be due to the difference in the preparation employed. The injection of osmic acid is worth a trial in obstinate neuralgias after other methods have failed.

Dr. Seguin said that he had not used osmic acid, but had had some experience in other methods coming under the same general plan of treatment, namely, that of deep-seated irritation by hypodermic injections. This method was first published by Louton in 1864. Louton used various agents, principally recommending silver nitrate. Dr. Seguin treated one case in 1865, and in one in 1873 or 1874 by Louton's method, both successfully. In both abscesses occurred, one being very troublesome. Some years ago he published an account of some cases of malarial neuralgias treated by deep injections of quinine. There may have been some antimalarial virtue in the drug employed, but he believed the local irritation the principal factor in the result. Quite a variety of substances may be employed, and possibly less irritating agents may give good results. Numbness and paralysis may ensue from deep injections over nerve-trunks, as in the case related by Dr. Jacoby. Two cases of damage to sensation were known to Dr. Seguin, one occurring in his own practice and one in that of a friend. Both were trigeminal neuralgia, and were treated by deep injections of chloroform, as recommended by Bartholow. The injection was made too near the infraorbital foramen, and persistent anæsthesia of the upper lip resulted. He had never seen motor impairment, but no doubt it could occur.

Dr. Jacoby, in reply, said that he did not believe that counter-irritation was the sole factor in the cure by osmic acid. Eulenberg claimed that the drug was unirritating. Some change in the nerve took place, as demonstrated by the discoloration. Abscess had not occurred in any of his cases, nor in those of others. He would not recommend the indiscriminate employment of osmic acid, but he thought it well to know of the method, and to resort to it in cases similar to those reported to have been benefited.

ON THE ARTIFICIAL NUTRITION OF INFANTS DURING THE FIRST THREE MONTHS OF LIFE.

The question how, in absence of the infant's natural food,—its mother's milk,—a favorable artificial nutrition can be procured is one of gravest concern to both the mother and the family-physician. Although the literature on this subject is a considerable one, its importance will insure hearty interest to all new suggestions.

Schoppe, of Bonn, in a recently-published pamphlet (Tübingen, *H. Laupp'sche Buchhandlung*), after pointing out the principal difference between the digestive apparatus of children and adults, dwells especially upon the great difficulty with which cow-caseine is digested as compared with woman's caseine. It is therefore, in all artificial foods, of the greatest importance to improve the chemical composition of the cow-caseine for the purposes of digestion. What is known as

Biedert's cream is to be regarded as the most appropriate artificial food.

Schoppe speaks further of the necessity to supply albuminates in large quantities, on account of the comparatively rapid growth and development of children. If, however, fat be added to the albuminates, their quantity may be diminished with impunity. The researches of Banse, Cloret, and others have established a peculiar usefulness of Biedert's cream in the various intestinal affections. Our author exhibited this food to twenty-six children ranging in age from 4 to 12 days, and persevered in this nutrition for three months unless grave symptoms called for a different regimen. In catarrhs of the intestinal tract water was entirely supplanted by gruel or mush, and the quantity of cream given made strictly proportional to the age and constitution of the infant. The absence of any considerable quantity of fat in the fæces and a rapid increase in the bodily weight were constant features of Biedert's regimen.

We regret that the *Centralblatt f. klin. Med.*, April 18, 1885, from which we abstract these remarks, does not contain any details of the composition of Biedert's cream, which, according to Schoppe, surpasses every other existing artificial food.

THE TREATMENT OF ENURESIS IN CHILDREN.

Since the most common cause of incontinence of urine in children is irritability of the bladder, the urine should be rendered as bland and unirritating as possible. This is best accomplished by rendering it neutral, for which purpose, according to Dr. J. Lewis Smith (*Archives of Pediatrics*, July 15, 1885), the administration of liquor potassæ, in doses of a few drops largely diluted, is highly satisfactory. This should always be the first treatment if no cause of incontinence can be discovered, and if the urine is decidedly acid. Belladonna is also indicated in such cases, as it diminishes the functional activity of the bladder. Five drops of the tincture may be given every evening, or, if the incontinence be diurnal as well as of nightly occurrence, every morning and evening, to a child of 5 years, and the dose be increased by one drop every second day, if the improvement do not occur and the physiological results do not appear, until the dose is doubled, or even trebled. When the desired effect is produced it is best to continue its use for some time in the dose which is found effectual, and then diminish the number of drops gradually.

If the incontinence be due to an abnormally-large secretion of urine, the cause may be such that something may be done to relieve the patient. The liquid ingesta in the latter part of the day should be restricted; if the increased flow be due to diabetes or chronic nephritis, enuresis, although an unpleasant symptom, is probably unimportant, and the grave disease which causes it requires attention.

It should not be forgotten that incontinence of urine may be due to stone in the bladder, and when no other cause can be detected, if the other symptoms of calculus be present, the bladder should be examined by sounding. So also the source of the incontinence of the urine may lie in the genital organs and rectum. Phymosis, preputial adhesions, balanitis produced by the accumulation of smegma; anal fissure, vulvitis or ascarides, should, if present, receive treatment, and, with removal of the irritating cause, the enuresis will probably cease. If the incontinence of the urine be due to atony of the sphincter, nux vomica or its active principle, strychnine, or ergot, should be employed.

THE CURE OF INFANTILE PARALYSIS BY ELECTRICITY.

In a remarkable memoir on infantile paralysis, Dr. Dive (*Revue Mensuelle des Maladies de l'Enfance*, June, 1885) assigns to the action of cold an important part in the etiology of this morbid process. Out of 140 cases, which form the basis of this monograph, the author has, in 37 instances, been able to find a direct causative influence in exposure to cold. In 19 cases the disease occurred as a complication of typhoid fever; in 9 cases it apparently was due to some inherited nervous defect; in 3 cases the parents were intemperate; and in the 13 other cases the attacks were recurrent, without any distinctly-determinable cause.

The author believes that the best means of treatment consists in the application of electricity, combining the galvanic currents with the faradic, although the galvanic currents alone may be successful in the production of a cure, provided treatment commence in the earliest stages of the disease. It is necessary to make use of a battery with constant current and feeble chemical action, and to pass the current down the spinal cord, so as to act on the seat of the lesion, which resides in the

anterior horns of the spinal cord. This mode of treatment must be persisted in for several weeks, and then the paralyzed and atrophied muscles subjected to the action of the faradic current, while, during the same sitting, the positive pole of a constant current is placed on the vertebral column, at the seat of the lesion, and the negative pole on the path of the nerve, passing to the atrophied muscles. Finally, during the last three minutes the continuous current must be passed through the vertebral column. The applications should be made on alternate days.

ON ANTIPYRETICS.

A discussion on antipyresis before the last German Congress at Wiesbaden, which was participated in by men like Liebermeister, the well-known advocate of the cold-water treatment in typhoid fever; Filehne, the discoverer of antipyrine; Jacksch, the discoverer of thalline; and Rossbach, the eminent authority from Jena, is certain to attract the attention of our readers, even though the subject has been of late ventilated very exhaustively.

FILEHNE believes that the action of all antipyretics depends upon their influence upon the (nervous) regulators of the animal heat.

LIEBERMEISTER, as usual, insists upon the cold-water treatment of all grave febrile affections. Medicines are, in his estimation, simply reserve measures to be resorted to when the cool bath does not suffice by itself, or is contraindicated for some cause or other, —cardiac weakness, intestinal hemorrhage. The well-tested antipyretic value of cold water ought not to be lost sight of, in face of the new and certainly serviceable antipyretic drugs. The explanation of the *modus operandi* of cold water in fever is not easy. In a healthy person a cold bath does not only not reduce the temperature, but actually causes it to rise a little, as nature replaces the mechanical withdrawal of heat by an increased internal reproduction of it. Only a very prolonged and very decided withdrawal of heat will result in a reduction of temperature. The same conditions take place in a febrile person, though the limits of regulations are reached much sooner than in a healthy person; hence an actual cooling process soon takes place. The after-effect of the withdrawal of heat is a very favorable one, and more than compensates the increased tissue-oxidation resulting from the cold bath temporarily,—*i.e.*, through the momentary rise of temperature.

In certain very grave cases neither the water-cure nor the medicinal treatment will suffice alone, but their combined influence will produce results strikingly superior to those following the employment of either alone.

It is not advisable to first employ the chemical antipyretics and then to resort to the cold bath, as it is usually too late for the latter to do good when the former have failed. The real purpose of antipyretics, including the cold bath, is not a total suppression of the fever, but to convert the dangerous continuous fever into a remittent or intermittent one.

JACKSCH, of Vienna, holds that thalline has a greater intensity of action than antipyrine, while the latter, especially when exhibited in large doses, shows a greater duration of the effect. It is possible, however, to obtain a similar effect even with thalline by a frequent repetition of the dose.

In pneumonia and erysipelas hyperpyretic conditions only call for antipyretics; in typhoid fever the cold-water treatment is more efficacious than the chemical antipyretics.

The remarks of STRÜMPEL, of Leipzig, though coming from a comparatively less authoritative voice, were nevertheless of greater intrinsic merit than the preceding ones. The great pertinent question in Strümpel's judgment is to decide whether the simple reduction of the febrile temperature *per se* modifies the course of the disease. Having made especial inquiries into the subject, this observer was in a position to trace the direct causes of death in numerous cases, especially of typhoid fevers, and found that the actual height of febrile temperature occasioned the lethal exit in but exceptional cases. The principal causes of a fatal issue usually refer to anatomical alterations caused by the disease (intestinal hemorrhages, peritoneal perforations), which cannot be avoided by any form of medication, or depend upon secondary complications (lobular pneumonia, suppurative parotitis, otitis). The avoidance of these secondary affections is the main aim of every rational treatment of typhoid fever. Taking, then, this view, the internal antipyretics must be of a doubtful value. True, they reduce the temperature, but do not relieve the sensorium, but often aggravate its depression (quinine, salicylic acid), embarrass respiration, and impair the digestive capacity. The cold-water treatment of typhoid fever is a prophylactic measure *par excellence* as far as complications are concerned. The height of a fever is not the

principal and by no means the only indication of the bath. The tonic influence of the water upon respiration, the nervous system, skin, and kidneys plays an important part in the salutary effects produced by the water-treatment.

BAUER, of Munich, spoke of the compensatory character of a high temperature, which probably destroyed the micro-organisms and thus led to a speedy termination of the disease. (These views have been presented to our readers in the report of a clinical lecture of Prof. Nothnagel, of Vienna, and hence need not be repeated here.).

ROSSBACH thinks it is probable that the present synthetical labors of chemists will ultimately result in the discovery of a specific remedy of an antipyretic character.

STINZIG, of Munich, praised antipyrine for the unmistakable advantages it showed in typhoid fever, pneumonia, and erysipelas over quinine and salicylic acid. If other observers had not seen the same gratifying effects from the employment of this remedy, they have to ascribe their failure to the insufficient doses in which they gave the drug. Given in doses of 15 to 30 grains (often as much as 6 drachms *pro die*), this observer saw frequently a signal improvement of the subjective state of the patient, and but in exceptional instances noted unpleasant after-effects.

HEUBNER, of Leipzig, made the interesting statement that the pouring of cold water upon the head and trunk of the patient while in the bath had a highly tonic effect upon the reflex centre of the medulla oblongata (respiration, circulation, defecation), and therefore was a desirable adjuvant to the usual water-treatment. In low temperatures and adynamic conditions a lukewarm, or even a warm, bath is recommendable, but always in connection with the above-stated cold-water procedure.

AN ALMOST PAINLESS METHOD OF INTRODUCING THE CATHETER.

DR. JOHN A. STAMPS recommends, in the *Medical and Surgical Reporter*, July 4, 1885, the following as an almost painless method of introducing the catheter when there is a hyperæsthetic condition of the urethra. His plan consists in introducing the nozzle of an ordinary male urethral syringe, previously filled with water as warm as the patient can bear, into a soft catheter, and injecting the water slowly as the catheter is gently passed along the urethral canal. The water regurgitates between the catheter and the urethral wall until the catheter has reached the prostatic portion of the urethra, and there is thus little danger of much water passing into the bladder, and the warmth of the water will, in many cases, serve to allay irritability, which so often interferes with the performance of catheterization.

THE EMPLOYMENT OF ELECTRICITY IN INTESTINAL OCCLUSION.

DR. LABORDE writes to the *Bulletin Générale de Thérapeutique*, May 30, 1885, that he was recently called in to see a man, aged 56 years, suffering from most violent colicky pains. The patient stated that two days before he had commenced to suffer from abdominal pains, which had persisted in spite of a number of injections which he had taken. He was not habitually constipated, and even the day before he had an ordinary movement from his bowels. He had quite frequently suffered from colic, which he always arrested with opium, which, however, in this case failed. He further suffered from nausea and vomiting. Examination of the abdomen showed the absence of any hernia in the various openings of the abdominal walls, and no tumor appreciable by palpation or rectal examination. Meteorism was already considerably marked, and violent pains radiating from the umbilicus caused the greatest suffering. At first prolonged baths, frictions with camphorated oil, castor oil and croton oil internally, and purgative injections were employed without success. Ten hours later pains and vomiting were more aggravated. All evacuant and narcotic treatment was then abandoned, and a large bougie was introduced into the rectum, and six injections of cold water were made. This means also failed, and resource was then had to electricity. One pole of an induction apparatus was placed at the margin of the anus and the other on the abdomen, and the current gradually increased until it was very powerful. Such an application for a quarter of an hour, however, produced no effect. One pole then remaining at the anus, the other was placed in the hypogastric region, and at the end of ten minutes, after considerable rumbling in the abdomen, the patient passed some gas and a small amount of liquid matter per anum. Another application of electricity resulted in the evacuation of an immense mass of greenish fluid and large quantities of gas, and the immediate cure of the patient.

According to Dr. Laborde's opinion, this

patient was suffering from some form of intestinal occlusion, though as to what the cause might be is not clear.

THE USE OF GALVANISM IN CHRONIC DISEASES OF THE PHARYNX.

The introduction of cocaine greatly reduces one of the principal objections—that of irritation from the electrodes—which has heretofore attended the application of galvanism of the pharynx. As long ago as 1880 DR. E. L. SHURLEY, of Detroit, called attention to the use of galvanism in the treatment of pharyngitis sicca, and he has since then considerably extended his experience with this mode of treatment, and publishes his results in the *New York Medical Journal*, July 4, 1885.

This mode of treatment Dr. Shurley believes to be especially applicable to that class of cases in which there are certain organic lesions of the pharyngeal mucous membranes which cannot be traced to any particular disorder of the neighboring or remote glands, and which are characterized by changes such as glandular hypertrophy, general hyperplasia, hypersecretion with or without epithelial development, atrophy with diminished secretion, etc.

In the treatment of such affections, while many of the local stimulant applications are certainly valuable, they are soon followed by a reaction, which shows the excitement to have been one of short duration, and not in any wise of vital character; but with the galvanic current Dr. Shurley thinks he has found a much more enduring effect. For example, the mucous membrane remains, in many cases, of a vivid color, and bathed in a quite fluid secretion for a number of hours after the application, and, moreover, leaves a sensation of heat and pliability (in cases of atrophy) which the patients describe as slightly exhilarating. The effect of the application is sometimes felt in adjacent parts, such as the cervical region. One of his patients states that the sensation of heat always remains in his throat for about forty-eight hours. After a few applications the sense of dryness and the collection of desiccated secretion in and about the naso-pharynx, which occur in the severer forms of chronic naso-pharyngeal disease, very sensibly lessen. In cases of engorgement accompanied by hypersecretion the result of this treatment has been quite efficient. Also in distinctly neurotic conditions, such as paræsthesia, he has had good effects from galvanism.

Dr. Shurley usually pursues the following method, viz.: First wash off the surface of the membrane, by means of a spray or posterior douche, with a solution of common salt or other appropriate fluid; then apply a four per cent. solution of cocaine hydrochlorate, and, after an interval of about five minutes, apply the electrodes, one through the nasal passage and the other to the posterior and lateral wall of the pharynx, moving them both rapidly but gently over the surface, being careful to keep them closely applied. He generally connects the electrodes with two cells (increasing to four or five) of a battery composed of the improved Leclanché cells. The electrodes are not covered, but naked, unless it is desired—as in cases purely nervous—to apply one electrode to the side of the neck, when that is covered. Gagging and muscular movements require the removal of the instruments, after a few seconds, for a short period of repose, when they are reapplied perhaps four or five times, according to the tolerance of the patient and the sensible effect produced. The *séance* may be repeated two or three times a week, as may seem advisable. He has experienced the greatest difficulty from the intolerance of the parts in question to the manipulation, but, as before mentioned, the use of cocaine has afforded, in the majority of cases, the desired tolerance. However, as might be expected, the drug, to a certain extent, antagonizes the effect of the galvanic application, and must be compensated for either by a longer or more frequent manipulation. In some cases one thorough treatment a week will prove sufficient.

Of course, it is not expected that this, any more than any other, plan of treatment will restore already-destroyed tissue, but that it is competent to arrest those metamorphoses which finally result in either the loss of glandular as well as other elements of the membrane, or the substitution of adventitious for the normal tissues, seems to be established. The period of time required for reaching permanent results will vary, of course, according to the kind of case and the state of chronicity presented.

ON CHRONIC BRONCHITIS IN CHILDREN.

DR. J. COMBY has recently published some interesting remarks (*Centralbl. f. kl. Medicin*, May 16, 1885) on the symptomatology and treatment of chronic bronchitis which invite general attention.

The chronic bronchial catarrh of children is an essentially different affection from the

chronic bronchitis of adults, which is usually attended by emphysema of the lungs. This latter affection occurs in children only as result of asphyctic or paroxysmal conditions. Dyspnœa, dilatation of the heart, œdema, and other grave sequelæ of chronic bronchitis of adults are but rarely met with in children. The little patients preserve, on the other hand, appetite, sleep, and their general strength remarkably well, and indicate but little inconvenience besides the cough. Comby regards scrofula, tuberculosis, and rachitis as the great predisposing causes for the affection. The actual origin of chronic bronchitis may be a simple acute catarrh, or may be secondary to infectious diseases, such as measles and whooping-cough. Fever is nearly totally absent, the cough is frequent and paroxysmal, especially during the night and in the morning, reminding one of pertussis.

The physical examination reveals intact apices of the lungs, normal resonance and limits, sonorous sibilant rhonchi, and humid râles of each type and combination. The sputa are very variable and often of a mucopurulent nature. Older children expectorate much, and chiefly in the morning. (Our author does not mention whether the sputa were examined for bacilli tuberculosi or not.)

The affection may last for years without showing any inclination towards a spontaneous resolution, forming thus an evident invitation for tuberculosis and infectious diseases. Aside of that the prognosis is not unfavorable, provided the hygienic conditions are good.

The therapeutist has but two duties, either a direct treatment of bronchitis with revulsives and emetics, principally with the highly-efficient ipecacuanha in aggravated cough, with narcotics, or to combat the scrofulous diathesis with all weapons of hygiene. In addition, iron and cod-liver oil in large doses will be found indicated.

THE SURGICAL TREATMENT OF CYSTS OF THE PANCREAS.

Of all abdominal organs the pancreas has been least frequently subjected to surgical treatment, for which the anatomical location of this organ and the obscurity of its affections furnish a sufficiently satisfactory explanation. Situated high up in the abdominal cavity, and hidden behind such important organs as the stomach, omentum, and transverse colon, it is the least accessible of all abdominal organs, and on this account its affections, wrapped in obscurity, have for the most part constituted objects for empirical medication. The relation of this gland to the surrounding organs and its great distance from the anterior wall of the abdomen, the only point of approach, necessarily offer serious obstacles to diagnosis and direct treatment. From a diagnostic point of view another great difficulty is our want of positive knowledge concerning the physiological functions performed by this gland in the process of digestion. As the symptomatology of all affections of the pancreas is always obscure, and a probable diagnosis can only be made in cases where the gland has become considerably enlarged by disease, it is apparent that our present clinical knowledge is limited to diseases which increase the size of the organ to a sufficient extent to permit its detection by palpation. Primary malignant disease of the pancreas, when it has advanced to such an extent that its presence can be diagnosticated with certainty by physical signs, will have invaded the adjacent tissues to such a degree as to preclude the advisability of an operation; consequently the efforts by the surgeon, for the present at least, must be directed exclusively toward the recognition and treatment of benign affections of this gland. Clinical experience does not extend beyond an imperfect knowledge of cysts of the pancreas.

The pancreas, like other secretory organs, is prone to become the seat of cystic tumors, the result of obliteration or obstruction of the common duct, or one or more of its branches. Cysts originating in this manner are true retention cysts, containing the physiological secretion from the distal portion of the gland-tissue, with perhaps accidental products, such as altered secretions, blood, and the products of inflammation.

In a very valuable paper on the surgical treatment of cysts of the pancreas, Dr. N. SENN, of Milwaukee, in the July number of *The American Journal of the Medical Sciences*, presents a full report of a case of retention cyst of the pancreas, which has recently come under his observation, and, at the same time, summarizes, in a compact form, the clinical history of similar recorded cases which serve as a basis for some general remarks.

In recapitulation, Dr. Senn submits the following conclusions:

1. Cysts of the pancreas are true retention cysts.

2. Cicatricial contraction or obliteration of the common duct or its branches and im-

pacted calculi are the most frequent causes of cysts of the pancreas.

3. A positive diagnosis of a cyst of the pancreas is impossible; a probable diagnosis between it and some other kind of cysts amenable to the same surgical treatment is adequate for all practical purposes.

4. The formation of a pancreatic fistula under antiseptic precautions recommends itself as the safest and most expedient operation in the treatment of cysts of the pancreas.

STATISTICS ON THE TREATMENT OF DIPHTHERIA.

RAUCHFUSS, of St. Petersburg, gives in the *Wratsch.*, 1885, Nos. 2–4, some interesting data as to the comparative value of the various modes of treatment of diphtheria.

Treatment with	Fibrinous form.			Phlegmonous form			General result.		
	Cured.	Died.	Per cent.	Cured.	Died.	Per cent.	Cured.	Died.	Per cent.
Sublimate	43	13	30.2	14	13	92.9	57	26	45.6
Chloride of iron	43	14	32.6	51	39	76.5	94	53	56.3
Chinoline	19	6	31.6	9	9	100	28	15	53 0
Resorcine	10	2	20.0	19	17	89.5	29	19	65 5
Bromine	15	7	46.7	18	16	88.9	33	23	69.7
Turpentine	12	1	8.3	11	9	81.8	23	10	43.4

Rauchfuss makes a distinction between a phlegmonous, or putrid form, and a fibrinous, or catarrhal (croupous) form. The following explanations will facilitate the understanding of the table. The methods tried were with,—

1. Sublimate. The mucous membranes were brushed every two hours with a 1½-grain solution of the sublimate; besides, mouth and pharynx were hourly washed with ⅓-grain solution of sublimate.

2. Liq. ferri sesquichlorati. Internally, 1 drop every two hours to 2 drops every half-hour, according to age (*i.e.*, daily doses up to 2 drachms), besides hourly cleansing of mouth and larynx with a three per cent. solution of boric acid.

3. Resorcine according to prescription of Andeer; calling in a light form of diphtheria only for cauterization with resorcine crystals, or the concentrated vaseline of resorcine, in medium grades for frequent repetition of the same treatment, and in grave cases for both the topical and constitutional use of the remedy. He used a ten per cent. solution for the brush, and a one per cent. solution for local washing. The remedy was not given internally.

4. Turpentine according to the recommendation of Bosse. The patient received either a teaspoonful twice daily, or hourly 10 drops, besides local washes with a three per cent. solution of boric acid.

Mush and wine were freely given in all cases. As soon as the diagnosis was established a two per cent. solution of bicarbonate of sodium was hourly inhaled for two minutes, and hourly doses of $\frac{1}{25}$ grain of the sublimate exhibited. Several received besides apomorphine $\frac{1}{64}$ to $\frac{1}{20}$ grain hourly. In grave cases 3 to 4 litres of water or tea, with cognac, were given in twenty-four hours to facilitate the secretions; besides, the wet blanket was used as often as six times in twenty-four hours. Tracheotomy was performed thirty-five times, with success in but five cases.

"CURARINUM SULPHURICUM."

LEHMANN, of Munich, made a series of carefully conducted experiments with this drug, and reports his results in the *Allg. Ztschr. f. Psych.*, vol. 41.

He used 3 grains of the drug dissolved in eight parts of distilled water and two parts of aq. laurocerasi, and first experimented on eleven animals (seven rabbits, two dogs, two cats).

Injections of $\frac{1}{13}$ of a grain sufficed to kill three rabbits, while smaller doses produced paralysis, convulsions of the extremities, increase of reflex irritability, and superficial breathing. The lethal exit was accompanied by forced expiration, gradual sinking of cardiac power, spontaneous micturition, and lachrymation. Lehmann used $\frac{1}{4}$ grain on himself hypodermically, and noted the pulse to rise rapidly from 74 to 90, but to return soon to normal. Five minutes after vision became confused, vertigo and general prostration set in; two hours after no toxic symptoms were observable. Another time the same dose did not produce any effects at all. Other experiments, made likewise on healthy individuals, gave the same variable results. The therapeutic application of curarinum sulphuricum in one hundred and fifty cases as a nervous sedative gave likewise, as was to be expected, very inconstant and, as a rule, unsatisfactory results.

MORPHINE IN CHOLERA INFANTUM.

The routine treatment of cholera infantum can be divided into three classes, according to different authorities. First, those who ad-

vise some form of opium, such as the tincture, camphorated tincture, deodorized tincture, or Dover's powder, but in small doses, especially avoiding it when there is a tendency to or during convulsions. Second, those who advise simple astringents and no opiate. Third, the few who even advocate laxatives or purgatives.

Struck by the analogy between cholera infantum and cholera morbus, it occurred to DR. SPENCER M. FREE (*American Journal of Obstetrics*, July, 1885) to use the same principle of treatment; and since most authors advocate the use of morphine subcutaneously in the last-named disease in full doses, he was led to employ the same treatment in three cases of undoubted cholera infantum. In each of these cases the condition appears to have been extremely serious, and in all a turn for the better was inaugurated by the injections of morphine. As regard to the dose which he employs, in one case $\frac{1}{8}$ of a grain of morphine, combined with $\frac{1}{800}$ of a grain of atropine, was employed, and in the other two cases the morphine was given internally in the form of a powder in doses of $\frac{1}{12}$ of a grain. The after-treatment consisted in the first place in extreme care in diet, allowing at first nothing but milk and lime-water, with a mixture containing subnitrate of bismuth, wine of pepsin, tincture of opium, chalk-mixture, and simple syrup. The particular advantage of this plan of treatment seems to be that perfect rest is secured from vomiting, diarrhœa, and other bad symptoms, and nature is then afforded an opportunity to recover her balance and to properly receive and apply our assistance. Of course, as regards the dose in this, as in all other diseases, each case must be a law unto itself, and the dose given must be regulated by the various attending circumstances and conditions. Dr. Free insists, however, that the dose must be large enough to produce its full physiological effect, or, in other words, cessation of all bad symptoms and perfect rest for several hours. The morphine should be given hypodermically or dry on the tongue. It should not be given in mixture, as it will then most likely be rejected by the stomach. Absorption should occur through the mouth or subcutaneous tissues, and thus relieve the alimentary tract.

THE TREATMENT OF EXUDATIVE PLEURISY.

In the acute form of pleurisy with slight exudation, active treatment is not necessary. Absolute rest, easily-digestible diet, and keeping the bowels clear is all that is necessary, though alkalies in small quantities or a simple diuretic will do no harm. If the absorption is slow, iodide of potassium or pilocarpine may be used, though without any very sanguine hopes of success. But when the exudation increases, then the question arises, When shall one operate? According to PROFESSOR CANTANI (*Centralb. für die gesammte Therapie*, June, 1885), operative interference is inadvisable when the exudation is evidently serous and the fever still continues, provided other indications do not make the operation unavoidable; for under such circumstances an operation may increase the inflammation and be the starting-point for serious complications. The chief indications for the operation are the following:

First.—When life is in danger, as from great increase in the quantity of the exudation so as to produce serious oppression of the heart and lungs. In such cases waiting may be very dangerous.

Second.—Slow absorption; for when an exudation remains for a long time in the thoracic cavity it is apt to undergo metamorphoses which may endanger the life of the patient. In such cases the exudation is a foreign body and should be removed.

Third.—When the exudation becomes purulent, the operation is then necessary to permit of the avoidance of purulent infection.

With the exception of these conditions, according to Cantani, no operation for pleurisy is justified, and he believes that physicians cannot be sufficiently blamed who at once proceed to paracentesis without waiting for the possibility of spontaneous absorption.

When paracentesis is performed the air should, if possible, be excluded from the thorax. This may ordinarily be accomplished by connecting the trocar with an elastic tube which dips below the surface of some antiseptic fluid, the internal pressure of the thorax being in most cases sufficient to cause the removal of the fluid from the chest. When, however, the internal pressure is not sufficient to expel the fluid from the pleural cavity aspiration must then be resorted to, though the first method is far preferable, as avoiding too great reduction of the internal pressure on the blood-vessels. In the performance of this simple operation two or three precautions must be preserved:

First.—The trocar must be previously carefully disinfected, either by washing with the sublimate or carbolic acid solution, or, what

is even better, passing it through the flame of an alcohol lamp.

Second.—Too much fluid must not be removed at once. It is therefore advisable to repeat the operation several times rather than subject the patient to the danger of a too rapid evacuation; for when the pressure which is acting on the surface of the lungs is removed a greater territory is opened to the circulation. When this rapidly occurs the blood is violently aspirated into the lungs and the right ventricle may be rendered incapable of contracting, so producing paralysis or death. Besides, the sudden reduction of the external pressure may produce excessive expansion and even rupture of the blood-vessel. Moreover, it is not necessary to remove the entire fluid at once; for since the pleura is capable of absorption, it itself may be able to remove a small part of the fluid. It may be advisable, however, to first determine if the pleura is capable of absorbing, and for this purpose Maragliano has proposed the following simple method: Some salt, such as iodide of potassium or salicylic acid, may be injected by a hypodermic syringe into the pleural cavity and its presence then sought for in the urine. If detected, it will of course prove that the pleura still retains its absorbing powers.

Third.—Both before, during, and after the operation the patient's strength must be carefully looked after, and sustained by wine, nutritious soups, etc.

When after the removal of the fluid the exudation again increases, paracentesis must then be performed, and now a slightly stimulating and disinfecting fluid may be injected, which will moderately increase the inflammatory process and facilitate the growing together of the pleural surfaces.

If the exudation has become purulent, or was so from the first, simple paracentesis is not sufficient. The pus must now be allowed free exit, and washing out the pleural cavity with disinfecting substances be resorted to. If the pus is not very thick, puncture with an ordinary-sized trocar and insertion of the drainage-tube is sufficient. But when this does not suffice, free incision of the pleura and the treatment of the pleural cavity as an open abscess must be employed. As disinfecting material Cantani recommends the sublimate in the proportion of 1 to 3000 parts in water. A large quantity of this solution may be used without any risk of toxic action.

After the operation, the collapse of the lung must be combated. As long as the patient may not leave his bed compressed air may be inhaled, which will serve to mechanically distend the pulmonary alveoli, though, to be sure, if the lungs have completely lost their elasticity, there is danger of producing emphysema. Even this is, however, preferable to permanent impermeability of the alveoli. As soon as the patient leaves his bed exercise in the open air, particularly walking, climbing on the mountains, which deepens inspiration and consequently facilitates expansion of the lungs, must be resorted to. So also cold douche baths, by reflexly producing deep inspirations, are valuable accessory means of treatment. Also plunge-baths are useful, for while the body is below the surface of the water its pressure must be overcome, and therefore deeper breathing will result.

THE INFLUENCE OF COCAINE, ATROPINE, AND CAFFEINE ON THE HEART AND BLOOD-VESSELS.

There are few known drugs that have, within such a short space of time, risen from comparative obscurity to such practical as well as theoretical importance as cocaine. Its great value as a local anæsthetic, and its wide application in all the branches of medicine and surgery, together with our comparative ignorance in regard to many points of its action on the animal organism, are sufficient to attract attention to a valuable experimental paper on the influence of cocaine, atropine, and caffeine on the heart and blood-vessels, by Dr. H. G. Beyer, U.S.N., which appears in the July number of *The American Journal of the Medical Sciences.*

Dr. Beyer finds (1) that *cocaine* is exceedingly prompt and uniform in its effects upon the heart. (2) In small doses it is a powerful stimulant to the heart's action. (3) In medium doses it has an inhibitory influence over the ventricular contractions. (4) In large doses it produces diastolic arrest, from which, however, the heart may be recovered under suitable conditions. (5) In small or large doses it produces contraction of the blood-vessels, independent of the central nervous system. (6) A rise in the blood-pressure, consequent upon the administration of cocaine, is due to a direct action of the drug on the heart and blood-vessels, stimulating the former and constricting the latter; a fall in blood-pressure coming on after the rise must be accounted for by the action of cocaine on the heart alone, since its constricting influence on the blood-vessels outlasts the

stimulating influence it exerts over the ventricle of the heart.

(1) That *atropine* in certain doses increases the rate of beat of the heart, and also the amount of work done; (2) that it exercises an inhibitory influence over the contractions of the ventricle; (3) that it first causes a contraction and afterwards a dilatation of the blood-vessels; (4) that cocaine acts on atropinized vessels in the same way that it does on normal ones,—*e.g.*, it causes their contraction.

That *caffeine* in small as well as large doses produces dilatation of the blood-vessels in the terrapin. Any rise in arterial pressure due to caffeine is, consequently, to be explained only by the stimulating effect caffeine exerts on the heart itself.

NARCOSIS WITH DIMETHYLACETAL AND CHLOROFORM.

VON MERING, in the Strasburg Surgical Clinic, has been employing a mixture of 2 volumes of dimethylacetal and 1 volume of chloroform in one hundred and fifty cases for the production of narcosis. The following are the most marked points of contrast with the use of this mixture as compared with that of pure chloroform: Intense mental excitement, as well as muscular agitation, never occurred, but the patients gradually passed into a quiet sleep. Vomiting or nausea was never observed during the narcosis. The effects of the narcosis rapidly passed off, so that in most cases the patients were perfectly conscious before they were removed from the operating-table, while no complaints of headache, or in fact any disagreeable after-symptom, were ever noted. Vomiting only occurred four times, and in each of these cases the patients received a large quantity of water immediately after the operation. In robust men the production of narcosis by this means is often prolonged for fifteen minutes, while children and anæmic persons are rapidly affected. As a result of his observations, FISCHER (*Centralbl. für Chirurgie*, June 20, 1885) recommends this mixed narcosis for the following cases:

1. When gastric catarrh, and vomiting after the narcosis, must be avoided. 2. For laparotomies. 3. For patients affected with heart-disease. 4. In cases of nephritis. 5. In disease of the central nervous system, especially in infantile paralysis and epilepsy. 6. In cases in which disturbing symptoms occur during chloroform-narcosis, and in which the operation can only be completed under anæsthesia.

The high price of the dimethylacetal—twenty-five dollars for two pounds—will prevent the general use of this anæsthetic mixture.

THE TREATMENT OF WHOOPING-COUGH.

In a clinical lecture on this subject, DR. J. M. KEATING (*Philadelphia Medical Times*, July 25, 1885) states that he has obtained remarkable improvement in four cases of whooping-cough by the use four or six times daily of a spray composed of

℞ Ammon. bromid.,
Potass. bromid., āā ʒi;
Tinct. belladonnæ, fʒi;
Glycerinæ, fʒi;
Aquæ rosæ, q. s. ad fʒiv. M.

As the success or failure of the treatment depends so largely upon the thorough use of the spray, the *modus operandi* should be thoroughly understood. Dr. Keating does not use a tongue-depressor, as he finds that its presence will cause gagging in most cases. The child should open the mouth wide, as wide as possible, and then be told to breathe as deeply and rapidly as it can. This rapid breathing will not only carry the vapor into the larynx, but will also divert the child's mind and prevent that reflex spasm of the arches of the pharynx which is so likely to occur. The spray should be continued, if possible, for a minute, then the child should have a rest, and again attack it, and so on for at least six or eight applications. The spray should be used before meals and just before going to bed. As regards the solution, although the above has answered most satisfactorily, it may be varied according to circumstances.

If the secretion be very scanty and tenacious, it would be necessary to use possibly the ammonium chloride instead of the bromides, with from 4 to 6 grains of acid. carbol. (cryst.) to the fʒiv. If the secretion be too profuse, the belladonna could be increased or alum added to the solution. To use the spray with good results it must be thoroughly and frequently used, and also kept up for some days, even weeks, after the paroxysms have diminished or ceased.

In the cases above mentioned Dr. Keating also gave the following to bring about a good night's rest:

℞ Potass. bromid., ʒi;
Chloral hydrat., gr. xxiv;
Cybil's ext. carnis, fʒiii. M.
(Any reliable fluid meat extract can be used.)
Dessertspoonful in water at bedtime.

Children will relish a cup of beef-tea at night in this way. It is strengthening for them, and disguises admirably the salty pungency of the medicine which it conceals. They also took

℞ Quininæ sulph., gr. i;
Syr. yerbæ santæ, ʒi. M.
Three times daily.

The syrup of yerba santa, used to disguise quinine, should be made *without the resin.* When made in that way it is an excellent vehicle.

The greatest difficulty is in the treatment of infants under one year with this disease. The use of the atomizer is of course very difficult, and it becomes necessary to substitute something for it. Belladonna stands at the head of the list. Dr. Keating gives it in 2-drop doses of the tincture three times daily for a child a year old, explaining to the mother exactly what is expected of it. If the night paroxysms are very severe, 3 drops can be given at night with the mixture of potass. bromid., gr. ii; chloral, gr. ii; or a teaspoonful of lac asafœtida.

The symptoms of belladonna-poisoning are dilated pupil, intense scarlatinous rash, and slowing of the respirations; indeed, the latter may be very alarming. On this account the belladonna should be given separately from any mixture, so that its dose may be regulated. In some cases it can be pushed until the pupils begin to dilate, in others the dose tolerated will be small.

The following mixture has been found excellent in some cases where the paroxysms are very violent and frequent, especially at night:

℞ Tinct. belladonnæ, gtt. viii;
Vini ipecac., ♏xx;
Spts. ætheris nitrosi, ♏xx;
Aquæ, q. s. ad ʒi. M.

A teaspoonful in an equal amount of water, with a little sugar, and repeated in one hour if required.

If the paroxysms are severe during the day, the secretion tenacious, and expectoration difficult, the following will often do well, with a dose of chloral at night:

℞ Ammon. carb., gr. viii;
Syr. scillæ comp., ♏xx;
Neutralize, and add
Syr. tolutan., fʒss;
Aq. aurant. flor., q. s. ad fʒi. M.
Dessertspoonful three or four times daily.

As the child constantly craves water, and if allowed to wait to satisfy its thirst for the time of nursing its eagerness will bring on a paroxysm, it is well to give it frequently a drink of sugared water with a pinch of bicarbonate of sodium.

A MEANS OF INCREASING THE DIGESTIBILITY OF MILK.

Dr. Uffelmann (*Petit Moniteur de la Pharmacie*, May, 1885) advises, as a means of increasing the digestibility of milk, its dilution with three times its volume of water. By this means the proportion of peptones is said to be increased five per cent. He has also recognized the utility of adding two to four yolks of eggs to each litre of milk. He recommends the following formulæ:

1. Milk, 1 litre; water, ½ litre; with 4 yolks of eggs and 4 teaspoonfuls of milk-sugar.

2. Milk, 1 litre, with 2 yolks of eggs.

Dr. Uffelmann further states that the digestibility of milk may be increased by the addition of mucilaginous solutions, such as gum-arabic; but in such cases it is necessary to add a small quantity of bicarbonate of sodium to neutralize the acid of the gum.

Alcohol, highly diluted with water, is further claimed to have a favorable action, and to greatly facilitate the digestion of milk. If this is the case, the alcohol, of course, can only act by stimulating the secretion of the digestive glands. Lime-water, according to this author, appears to be of no advantage except in cases where the dyspepsia is due to an exaggerated acidity of the gastric secretion.

It is scarcely necessary to add that the addition of the different digestive ferments, such as pepsin, pancreatin, and papaine, may be used for the same purpose.

THE REPEATED DOSES OF CASTOR OIL IN CERTAIN SKIN-DISEASES IN CHILDREN.

Although castor oil is such a common and well-known remedy, its use is nearly always confined to the administration of single doses, as is demanded to remove the offending contents of the gastro-intestinal tract. Dr. L. Duncan Bulkley (*Journ. of the Amer. Med. Association*, July 25, 1885), however, calls attention to the fact that frequent and repeated doses continued for a considerable period will produce effects difficult to obtain by other means. As an illustration of the value of this use of castor oil in certain cases, he re-

ports the case of a child, aged 6½ years, suffering from chronic urticaria, which had resisted good treatment at the hands of others. The child was fairly developed, but of an earthy complexion, was restless, peevish, and complained continually of great fatigue. She had previously taken as a tonic an iron mixture, and also mixture of rhubarb and soda, but without benefit to her health. She had recently been in the South, and had contracted malaria, which quinine held in check with difficulty. She was found to be the subject of urticaria, the wheals developing rapidly at any time of the day, and from no especial cause. When seen there was not very much of urticarial element present, but there was more or less of the papillary eruption left after the disappearance of the former lesions, constituting the disease known as urticaria papulosa. Her pulse stood at 94, of fair strength; the tongue was moderately clean. For some time previously she had complained of pain in the right abdominal region, and would call attention to it frequently. On percussion of the abdomen, the right iliac region was found to present very considerable dulness, extending well up to the liver, and somewhat into the transverse colon; there was no special dulness on the left side. She had complained of diarrhœa; the movements, however, were ineffective, and often more or less lumpy.

She was ordered to take a teaspoonful of castor oil every night, and was also given an emulsion of castor oil with gum-arabic and sugar and a little opium to check excessive action. Twelve days later she was brought to the office, having taken a teaspoonful of castor oil every night in the intervening time. This had never acted more than three times daily, and generally not more than once or twice. The diarrhœa had been checked in two days, but she still complained of pain in the abdomen, sometimes in the left side, with which she had had two attacks of crying. She looked very much better in general appearance, with less of an earthy color, and her appetite, which before had failed entirely, was now good. On percussion, the abdominal dulness was decidedly less, but still marked; the stools had contained more or less of lumps with each movement. The administration of the oil every night was continued, and 2 grains of quinine were ordered to be taken before each meal. About a week later she was again seen, and appeared to be still better in health; the pulse was 80, and the tongue clean. The oil had been increased to a teaspoonful and a half each night, and lumps had ceased to appear in the stools, which presented only healthy fæcal matter. The pain had ceased entirely in the abdomen, but there was now more general dulness over the entire abdominal region. It was then attempted to administer again to her an iron mixture, with the continuance of the oil, but this shortly disagreed, causing her to sleep badly and to be restless and irritable, and it was discontinued and an alkaline and bitter tonic given in its place. About one month after the commencement of the castor oil it was recorded that she looked remarkably well, fat and round in the face, had lost the pale, earthy look, and had gained two pounds and a half in flesh; the abdomen was resonant all over.

The castor oil was still continued in moderate doses, producing one or two quite healthy movements. Shortly after this the oil was omitted for a few nights, contrary to directions, and she began to be again troubled in her sleep, and felt poorly, and the urticaria, which had disappeared very shortly after beginning the oil, returned in considerable degree. The abdomen was found to be again dull on the right side, and the castor oil was returned to, with the result of producing shortly a resonant abdomen. She was then given a mixture containing lacto-pepsine after each meal, which had the effect of inducing regular healthy action of the bowels. The urticaria had ceased with the last administration of castor oil, and the child remained afterward in much better health; but on another occasion, somewhat later, the abdominal indigestion returned, and the castor oil was again returned to, with good effects.

In this case the little patient took the castor oil continuously for over one month, and for shorter periods on three other occasions. In a number of cases of infantile eczema, even where there was not the evidence of obstructed bowel excretion, Dr. Bulkley has administered castor oil, as in the preceding case, with great advantage, in doses varying according to the age of the patient and the necessities of the case, never, however, so as to produce purgation, but only to excite a somewhat increased and healthy discharge from the intestinal canal.

Thus he has employed it in one case, that of a boy aged about 8 years, in which the impetiginous eczema, which had cropped out from time to time upon the face and scalp, yielded most happily to this course of treatment; but, as happens so frequently in public

practice, the neglect of treatment for a period, together with bad dietary and hygienic surroundings, necessitated its use on several occasions. This child had also ulceration of the cornea; and at several visits the mother would remark that this ulceration, which had resisted local treatment at the hands of oculists, yielded in a remarkable manner each time when the oil was administered.

Acting on the suggestion mentioned in the last case, he has employed this treatment, by repeated doses of castor oil, with very great advantage, in a case of acne rosacea, complicated with persistent and rebellious corneal ulcerations.

Castor oil is also often of value in other conditions not associated with disease of the skin, as in cases of chronic and recurrent tonsillitis.

Dr. Bulkley's experience shows that castor oil may be taken with advantage repeatedly for a considerable period of time. In the boy with the sore throat this treatment was carried out for a period of almost six months, with few intermissions, he repeatedly taking the oil for a month or more without intermission.

In regard to the mode of action of the oil in these cases, it acts unquestionably as a stimulant to the abdominal organs, the color and character of the movements from the bowels being the indication with regard to its use. In those cases where there is intestinal torpor, followed by greater or less accumulation of fæces in the large intestine at either side or throughout its entire length, this plan of treatment is peculiarly happy and beneficial in its effects. The apparently tonic effects following this course of treatment must be attributed largely to the improved absorption and assimilation which take place in the gastro-intestinal tract, although it is quite possible that some portion of the oil thus taken acts as a direct nutrient. Many cases of skin-disease, especially urticaria, are undoubtedly attributable to reflex irritation having its origin in the intestinal canal, and undoubtedly many cases of tonsillitis have their origin in like manner. In repeated instances he has observed that beginning tonsillitis could be broken up almost immediately by the free administration of castor oil.

With regard to the administration of this remedy, which is so often considered nauseous and repulsive, a few words may be added. Specimens of castor oil undoubtedly differ not a little in their qualities, and care should be exercised to secure a sweet, pure, and fresh quality of cold compressed castor oil. To adults this drug is undoubtedly repulsive, but in view of the value of the gain which often results from its administration, he has found little difficulty in having a number of adults take it as here described for a greater or shorter length of time. To children, however, if especial attention is not called to it, the remedy is not as repulsive as to those of older years, and young children are often seen to be very fond of it. In several of his cases in which it was continued for a considerable period of time the children remarked that they did not find it at all an unpleasant dose to take.

With regard to the mode of administering castor oil, there are very many plans which may be adopted. In the first place it is important that the remedy should be taken alone, and not with any other substance which may interfere with its action. Dr. Bulkley objects most decidedly to having spirit, wine, or any such substances added to it, and prefers even that it should not be given in conjunction with orange, milk, coffee, etc. The plan he has usually adopted is as follows: The patient takes a sip of very cold ice water, or a small lump of ice, holding it in the mouth for a moment, and the oil is immediately taken in a single dose from a large spoon. The lips are then quickly and very firmly wiped or rubbed with a towel, and a drink of ice water is taken instantly afterwards. In this way those who have shuddered at the idea of taking the oil have found that it gave them little annoyance, and in this manner it is left free to act in the stomach without the presence of substances which might interfere with its operation.

In conclusion, he adds that in presenting this subject of the repeated administration of castor oil, he does not desire to place too much emphasis upon its value, nor to recommend it as a panacea even for the conditions previously alluded to. In almost all the cases in which he has employed it other remedies have been given either conjointly or from time to time alternated with it, and to them undoubtedly must often be ascribed some measure of the good result obtained. On the other hand, he can affirm that for certain conditions, such as may be learned from the cases cited, he has found no remedy to equal it, and he believes that in these and in many other conditions the prolonged use of repeated doses of castor oil will be found to serve a valuable purpose in our efforts to combat disease.

CUPREINUM AND CINCHONAMINUM.

These two new interesting alkaloids, of which the first has been discovered by DR. PAUL in the so-called cuprea bark (remijia pedunculata), have recently been brought upon the market. The former is particularly noteworthy on account of its solubility in caustic alkalies. This proves that the alkaloid, in addition to marked basic properties, also possesses the characteristics of an acid, which renders possible its well-known union with quinine, under the name of homoquinine. Homoquinine can also be synthetically produced by the mixture of cupreine and quinine sulphate, precipitation with ammonia and solution in ether, from which the homoquinine then crystallizes out. The neutral cupreine sulphate is only feebly soluble in hot water, and the acid cupreine sulphate is even less soluble. The combination of cupreine with hydrochloric acid is, on the other hand, readily soluble in water, from which it crystallizes out in needles. Cupreine is now being examined as to its medical properties, but the results of these investigations have not yet been published.

Cinchonamine is found in the bark of the remijia purdieana. One of its most marked characteristics is the insolubility of its nitrate in cold water and acids, so that it serves as a test for presence of nitric acid, which promises to be specially valuable in the examination of organic compounds for this acid. The nitrate is soluble in hot water, and the sulphate crystallizes out of alcohol in flakes. Cinchonamine also possesses tonic properties, which appear to be about six times stronger than those of the cinchona alkaloids. Its physiological action has already been referred to in earlier numbers of the THERAPEUTIC GAZETTE. — *Pharmaceutische Zeitschrift für Russland*, No. 20, 1885.

A CASE OF DIABETES MELLITUS CURED BY THE REMOVAL OF THE UTERINE APPENDAGES.

DR. FRANCIS IMLACH reports, in the *British Med. Journ* , July 11, 1885, a case of a widow, aged 31, who consulted him in February of this year on account of leucorrhœa and pelvic pain. The diagnosis of pyosalpinx was made, and operative treatment was suggested, but as on a subsequent visit she mentioned that for a month she had been afflicted with insatiable thirst and sleeplessness, the bowels being irritated and the urine being greatly increased in quantity, the urine was examined, and found to contain large quantities of sugar. All thoughts of operation were then abandoned, and she undertook to live upon gluten-bread and biscuits, meat, etc., giving up starchy food and sugar, and as much as possible to restrict her drink ; but in spite of this treatment she was becoming rapidly weaker and more emaciated. She was admitted into the hospital on May 15, and in a few days afterwards the uterine appendages were removed. The right Fallopian tube was thickened in its walls, occluded at both ends, and distended with pus ; the left tube was thickened, but not occluded, at the fimbriated extremity, containing only a little mucoid pus. Both ovaries were so firmly adherent in the pelvis that their removal was somewhat difficult. The fundus of the uterus, which was bound by dense adhesions to the sacrum, was liberated. The patient recovered without a bad symptom, and got out of bed on the ninth day.

The surprising point in this case is that one week after the operation, even under ordinary diet, the sugar entirely disappeared from the urine. Although the case only remained under observation for a week longer, there was no reappearance of the sugar, no longer constipation, and her strength was then already almost completely restored.

SUGAR IN THE BLOOD.

PROFESSOR J. SEEGEN, of Vienna, recently published the results of his extended researches on the physiological relations of the sugar in the blood (*Wiener Med. Woch.*, No. 1, 1885). We abstract here his epitomized conclusions :

1. Sugar is, doubtlessly, a normal constituent of the blood.

2. Its quantity is larger than usually believed, viz., 0.1 to 0.15 per cent.

3. The blood passing from the liver contains double the quantity of sugar as the blood entering the liver. In thirteen instances Seegen found in the hepatic artery 0.119 per cent. of sugar, and 0.230 per cent. in the portal veins.

4. Counting that the blood takes up, on the average, one per cent. of sugar in the liver, Seegen calculated that between 200 and 500 grammes of blood passed from the liver into the circulation during twenty-four hours.

5. Sugar (in the carnivorous animals, at least) is elaborated from the albumen of food. The greatest part of the carbon contained in

the meat animals feed upon is utilized for the formation of sugar.

6. In experiments which excluded the liver from the circulation the proportion of sugar in the blood was found to be decreased.

7. The formation of sugar in the liver and its utilization in the blood and tissues is one of the most important of tissue-changes.

THE USE OF ANTIPYRINE IN SUNSTROKE.

It occurred to Dr. Benjamin F. Westbrook (*New York Med. Journ.*, July 25, 1885) that the prompt introduction of an antipyretic dose of antipyrine into the subcutaneous tissues might be of good service in reducing the temperature in sunstroke, and would give time for the treatment of other pathological conditions. The ambulance-surgeon of the St. Mary's General Hospital, Brooklyn, was, therefore, provided with a fifty per cent. solution of antipyrine, and in the event of his being called to a case of the apoplectic form of the disease, was directed to administer a drachm of the solution hypodermically at once, and to repeat its use if the temperature was not markedly reduced, —other measures, of course, not being neglected. The weather on the 18th of July gave him an opportunity to test the action of this mode of treatment; one case being that of a young Englishman, 22 years old, of very robust habit, who, after working out of doors all the forenoon, became comatose and convulsed after reaching his home at mid-day. The head was congested, eyes suffused, pulse rapid and strong, skin dry, and the coma profound. The bowels had moved spontaneously and he had vomited freely. The rectal temperature was 109° F. The doctor administered a drachm of the fifty per cent. solution of antipyrine hypodermically, applied ice to the head, and removed him to the hospital.

In the confusion attending his admission the exact time was not noted, but in about three-quarters of an hour after the first dose the rectal temperature was 107.50° F. Cold was applied to the body and head by means of towels wrung out of ice-water and frequently changed, and another drachm of the solution was introduced under the skin. In thirty minutes the rectal temperature was again taken and found to be 99° F. The cold applications were at once discontinued and dry heat was applied to the surface, while whiskey was injected subcutaneously.

When Dr. Westbrook arrived shortly afterwards the surface of the body was cool, the pulse 120, the coma profound, and all the limbs were twitching convulsively. The head was still congested, the conjunctivæ injected, the pupils contracted but responding feebly to light, and the respiration was irregular and accompanied by a loud expiratory groan, such as is heard in severe cerebral disturbance. Two ounces of whiskey and 40 grains of chloral hydrate were given by enema, but they were not retained. About ½ an ounce of whiskey was then given hypodermically. In half an hour the temperature began to rise slowly, so that the surface was warm. The twitching of the voluntary muscles became more marked, and he was seized with a most violent tetanic convulsion, which was controlled by chloroform. As the convulsions succeeded each other with increasing rapidity and intensity, the median basilic vein was opened and thirteen ounces of blood withdrawn. The bleeding was terminated sooner than was desirable by the onset of a terrific convulsion, during which the arm was twisted violently and the opening in the vein occluded. After this there were no more severe convulsions, the patient became more quiet, and the rectum retained forty grains of chloral hydrate. This was followed by a period of rest, during which the axillary temperature was taken and found to be 103.75° F.

One drachm of Lente's solution was thrown under the skin, and repeated about once in two hours till four doses were administered. At 8.15 P.M., as slight convulsions had occurred from time to time, 6 leeches were applied to the temporal regions, 20 grains of antipyrine given hypodermically, and 40 grains of chloral hydrate by the rectum. From this time on he slept quietly, the temperature slowly declining until Sunday morning, when it was 99° F.

At about ten o'clock on Saturday evening the patient first became sufficiently conscious to partially respond when spoken to, and from this he passed into a condition of hebetude, which, by Monday forenoon, had given place to complete consciousness. The temperature has been normal since Sunday afternoon, though the pulse is still somewhat rapid. He takes nourishment well. From Sunday morning to Monday morning he had 40 grains of sodium bromide every two hours, and 5 grains of the sulphate of quinine every four hours. The doses were then reduced to 20 grains and to 2 grains.

This case represented the severest type of sunstroke. Dr. Westbrook states that he has

never before seen so bad a one recover. The temperature was high, the coma very profound, and the convulsions terrible. The rapid and permanent reduction of temperature, which must have been mainly due to the antipyrine,—inasmuch as the cold applications were only continued for half an hour,—undoubtedly contributed towards the favorable result by giving time and removing at once the injurious effect of the hyperpyretic blood upon the higher nervous centres. The beneficial effect of the abstraction of blood was evident.

The second case was brought in an hour or two after the first, and while Dr. Westbrook was in the hospital.

The patient, an Italian laborer, had been engaged in some laborious work upon the new building of the St. John's Orphan Asylum, which was destroyed by fire last winter. He became suddenly unconscious, had well-marked convulsions, and voided his excrement involuntarily. When Dr. Folker, the ambulance-surgeon, arrived he was comatose, breathing irregularly, with rapid and tense pulse, suffused conjunctivæ, dry skin, and continual convulsive twitchings of all the voluntary muscles. The rectal temperature was 110° F. The doctor gave him a hypodermic injection of 1 drachm of the fifty per cent. solution of antipyrine, applied ice to the head, and brought him to the hospital. On his admission he was comatose. The surface was cool. The pulse was 120, as nearly as it could be counted, with marked tension and a laboring stroke of the heart. The respiration was rendered irregular by the continued spasmodic movements of the voluntary muscles.

The convulsive movements of the limbs were very peculiar, in that they were rhythmic in character, and most readily likened to those of a man pulling upon a rope. The rectal temperature, thirty-five minutes after the administration of the hypodermic injection containing one-half drachm of antipyrine, was 101° F.

No cold applications were used in this case, with the exception of ice to the head. He was given, by enema, 4 ounces of whiskey and 30 grains of the hydrate of chloral, and retained it.

After a time he became quiet, the convulsive movements almost entirely ceased, and consciousness became dimly perceptible. But, upon changing him to another bed, the peripheral irritation threw him into an active tetanic convulsion, which, however, soon subsided spontaneously. It was noted afterwards that any pronounced peripheral irritation would produce convulsive movement. After an hour he received another half-drachm dose of chloral hydrate, with two ounces of whiskey, *per rectum.*

He also received a drachm of Lente's solution of quinine about once in two hours. On Sunday morning he was quite conscious. The temperature was 99° F. He was ordered 20 grains of the bromide of sodium every two hours and 3 grains of quinine every four hours. On Monday his condition was still better, his mind, apparently, quite lucid, and his desire to move about and partake of food very decided. The bromide and quinine were continued.

The favorable termination in both of these cases is significant, as they were both accompanied by great hyperpyrexia and signs of a most profound vital disturbance. The first case was probably slightly injured by the use of cold applications too long continued, but this was quite excusable on the part of the house staff, as they were dealing with a new remedy, and had been advised not to neglect the old ones. The result in the second case would seem to strongly indicate that, where antipyrine is used, the external application of cold is not necessary. Another interesting observation was that, when the temperature declined, the cerebral symptoms still continued. This might indicate that even a short period of such intense heat and arterial excitement may so benumb the vaso-motor apparatus that several hours are required for recuperation.

If this is the correct inference, an agent like antipyrine, which is capable of reducing the temperature quickly, may be of the utmost importance.

But, of course, further observation is necessary before any positive conclusion can be drawn. From his experience so far, Dr. Westbrook thinks that half a drachm of the drug would be sufficient to accomplish the purpose. A fifty per cent. solution is easily made, and, when injected beneath the skin, produces very little irritation.

ON ALBUMINURIA PRODUCED BY MERCURY AND SYPHILIS.

Any remedy which produces serious pathological conditions, even if its curative influence cannot be fairly denied, must be regarded with suspicion. This is signally the case with mercury in the treatment of syphilis, in which, as is well known, papular eruptions and, as now asserted by FÜRBRINGER, of Jena (*Cen-*

tralb. f. kl. Med., No. 20, 1885), also albuminuria is to be charged to the specific treatment with mercury.

Our author examined the urine of one hundred patients affected with secondary syphilis, and previously not treated with mercury, and found that in eight instances albuminuria occurred after beginning with the mercurial treatment. The excretion of albumen began usually during the second week of the medication, and did not exceed one-fifth per cent. (excepting one case, in which one per cent. was reached). Pathologically considered, the albuminuria is based, in these instances, upon a toxic glomerulitis, the urine containing no evidences of a genuine diffusive nephritis.

It is rather remarkable that in twelve out of one hundred cases of syphilis, which at no time received any mercury, albuminuria made its appearance simultaneously with the roseolar acne, depending, as is proven by a urinary examination, upon a desquamative nephritis. The mercurial treatment soon removed all evidence of albuminuria (no doubt by curing its cause, viz., the syphilitic intoxication).

THE TREATMENT OF HAY FEVER.

Of the drugs which may be employed internally with a hope of warding off or lessening an attack of hay fever, quinine, strychnine, arsenic, and iron are of more or less value from their influence in promoting the general health and building up the nervous system. Valerian, asafœtida, and phosphide of zinc are also useful from their antispasmodic effects. The medicinal treatment of the disease itself is in the highest degree satisfactory, and as a result all patients who can resort to climatic treatment. In the *Chicago Medical Journal and Examiner* (July, 1885), Dr. E. Fletcher Ingals adds his testimony to the evidence which has been already laid before the readers of the Gazette as to the value of the use of local applications of solutions of cocaine and the galvano-cautery, and he draws the following conclusions as to the points which seem established in the treatment of hay fever:

1. Nearly all cases may be cured by systematic, thorough, superficial cauterization of the hypersensitive portions of the nasal mucous membrane, providing the treatment is carried out during the interval between the attacks.

2. The most effective and least painful means of accomplishing this is by the galvano-cautery.

3. Care must be exercised to treat every sensitive spot and not to cauterize too large a surface at once.

4. The operation may be made painless by a proper use of hydrochlorate of cocaine.

5. In nervous subjects general treatment must not be neglected.

6. The effects of cocaine in hypertrophic catarrh, and in the case of idiosyncratic coryza which he reports, render it highly probable that it will give much relief in many cases of hay fever.

STRYCHNINE AS A SPECIFIC FOR ACUTE ALCOHOLISM.

Dr. Lardier (*Journal de Médecine*, June, 1885), after a prolonged experience with the use of strychnine in the treatment of chronic alcoholism, believes that it may be regarded as a true specific in this disease if the dose is sufficiently pushed to produce its therapeutic effect. He reports having given as much as 12 grains of strychnine in twenty-three hours in a case of delirium tremens. During the first few days of treatment pills of 5 milligrammes of strychnine were given every two hours, but at the end of three days no therapeutic effect having been obtained the number of pills was increased, and a hypodermic injection was given so as to increase the amount taken in less than one day up to the enormous quantity of 12 grains. From this time the patient commenced to improve and was soon sleeping quietly, while at no time was there the least symptom of the toxic action of strychnine. Dr. Lardier further adds that the prescriptions were made under his own supervision, that they were actually taken by the patient, and that he knew the preparation to be an active one. He thus, therefore, disposes of the doubt which naturally suggests itself as to the actual ingestion of such a stupendous dose of so powerful a poison as strychnine.

THE TREATMENT OF PURULENT CONJUNCTIVITIS.

Dr. J. A. Andrews, of New York, read a paper on this subject at the recent meeting of the American Ophthalmological Society (*New York Medical Journal*, July 25, 1885), in which he said that the treatment was based upon the belief that the contagious element was of the micrococcus variety. He related a case in which he had secured an inoculation of the seventh generation of a pure cultivation of a

gonococcus. This was the first case inoculated with the gonococcus. He exhibited an instrument which he had devised to wash out the conjunctival *cul-de-sac*. It consisted of an eye speculum with hollow arms through which fluid might be passed. He had found bichloride of mercury solution (1 to 10,000) serviceable, but apt to irritate. A six per cent. solution of boric acid was also found efficient. A two per cent. solution of carbolic acid was useful, as it inhibited the movements of the white corpuscles. Irrigation should be maintained for ten minutes in order to remove all secretion. Nitrate of silver solution (two to twelve per cent.) was then used, and an antiseptic dressing was next applied. This consisted of vaseline and boric acid or carbolic acid; but he laid especial stress upon the importance of maintaining irrigation of the conjunctiva by means of the instrument referred to.

ALOINE.

The scle process at present known for the extraction of aloine is that of Tilden. Twenty-five drachms of aloes are dissolved in two hundred and fifty cubic centimetres of boiling water acidulated with hydrochloric acid and allowed to cool. The liquid is then separated by decantation, and the resinous matter which is precipitated is evaporated to about fifty centimetres and allowed to stand for two weeks. At the end of this time the remaining liquid is poured off, and the crystals which have formed are freed from resinous matter by pressing between sheets of paper.

Such is the process of Tilden, which, as can be readily seen, might admit of improvement. CH. PLENGE (*Bulletin Général de Thérapeutique*, June 15, 1885) has made a number of attempts to devise a better method for purifying the crystals of aloine. Alcohol was first tried, and although it dissolves the crystals, in the new crystallization a considerable amount of resinous matter still contaminates the crystals. Among the other dissolvents employed acetic ether appeared to be the best, since the resin appeared to be more soluble in it than the aloine. After agitating the crude aloine with this ether for some time, the liquid acquires a brownish color and crystals of pure aloine are deposited. Five specimens of aloes have been assayed after this process. The Curaçoa and Benares aloes yield about the same proportions of aloine. Cape aloes furnishes none. Socotrine aloes yielded three per cent. of aloine; Barbadoes aloes, nine per cent., and that of Curaçoa, seven per cent.

SHORTENING OF THE ROUND LIGAMENTS.

At a meeting of the British Gynæcological Society, held June 10, 1885, DR. ALEXANDER (*British Medical Journal*, July 4, 1885) read a paper on the operation of correcting some uterine displacements by shortening the round ligaments. He said the operation had now been performed in nearly all the prominent cities in the world, and by most operators with more uniform success than generally befell any new operation. He never found any difficulty in finding and drawing out the ligaments. An incision was to be made upwards and outwards from the pubic spine, in the direction of the inguinal canal, for one and a half to two or three inches, according to the fatness of the subject. A considerable thickness of subcutaneous fat was then met with, which must be cut through by subsequent incisions, until the pearly glistening tendon of the external oblique muscle was reached. Midway through the fatty tissue an aponeurosis sometimes appeared, so firm and smooth that it might cause the operator to think he was deep enough, but he would find no ligaments at this spot. The first stage of the operation consisted simply in cutting down upon the tendon of the external oblique muscle until it appeared clean and shining at the bottom of the wound. The external ring was then found. The finger passed to the bottom of the wound detected the spine and the ring outside. Having isolated the external wound and tied any little vessels, the next step was to find the end of the ligament. By everting all the structures upwards the round ligament could be seen, generally at the lowest part, and with the white, easily distinguished genital branch of the genito-crural nerve along its anterior surface and close to it. The ligament at this stage was more or less rounded in shape. It was an easily recognized flesh-colored structure. When the ligament was identified the small nerve on its surface was to be cut through without dividing any of the ligament. Then gentle traction was to be made, either by the fingers or by broad blunt-pointed forceps. Bands holding it to neighboring structures were cut through with scissors. As soon as it began to peel out, it was left and the opposite side begun. The final stage of the operation consisted in placing the uterus in position by the sound

and pulling out the ligaments until they were felt to control that position. A curved threaded needle, with fine catgut, was used to stitch each ligament to both pillars of the ring, and the external abdominal ring was closed without strangulating the ligament as it lay between it. The ends of the ligaments were now cut off, and the remainder stitched into the wound by means of the sutures that close the incision. A fine drainage-tube was inserted, and the wound washed out with carbolic or other lotion before these sutures were tied. The after-treatment consisted in rest. The tubes were removed on the second day, when the wound was dressed. The mortality of the operation might be set down as none. Three deaths had occurred, but they were due to preventable causes. As mortality did not seriously enter into any consideration of the results of this operation, the real question at issue was whether it fulfilled the intentions of the operator and satisfied the expectation of the patient. The operation was designed to correct certain uterine displacements, and these alone. Whether the discomfort of the patient would be thereby relieved entirely depended on whether or not the symptoms were due to the displacement. To secure success the operation must be properly performed, and the after-treatment must be rational, so that no strain might be placed on the ligaments until sound union had taken place.

ON URÆMIA.

The term uræmia belongs to those medical expressions that seem too well understood to require special investigations. Though it is obviously a constitutional intoxication, produced by the entrance into the cerebral circulation of a certain quantity of matters normally excreted by the urinary apparatus, the precise nature of the exciting cause is subject to much discussion. The theories of Traube and Frerichs are no longer tenable; urea is not the cause of intoxication, as FLEISCHER, of Erlangen (supplement to *Centralbl. f. klin. Med.*, May 20, 1885), has proven by repeated experiments. He gave as much as 200 grammes of urea without causing uræmic symptoms; likewise, without the stated result, was the injection of 90 grammes of urea into the blood, and of 100 grammes into the peritoneal cavity. These experiments, made on dogs, showed strange diuretic properties of urea, suggesting its therapeutic applicability as a diuretic injection per rectum. Even the injection of sterilized urine into the jugular vein of dogs caused no convulsions, though violent vomiting ensued. Normal urine *per se* produces likewise no uræmic symptoms, but it is likely that the retention in the organism of the urine generates novel toxic factors, which produce the uræmia. Hence it is impossible yet to positively say what is the cause of uræmia.

THE TREATMENT OF MIGRAINE.

DR. CLIFFORD ALLBUTT has found two drugs useful in the treatment of migraine. The first is guarana, given in two or three doses at short intervals. This is applicable to those cases which begin with some slight warning in the early day. Croton chloral is the other drug; this should be given in repeated doses until twenty grains in all have been taken. As migraine is a disorder that originates in childhood, the hope of a cure must be based upon a healthful life, a healthful growth, and a healthful education. With regard to tonics, a combination of bromides with quinine has answered best; then come cannabis indica and ergot, and after these chloride of ammonium. The well-known fact that ocular anomalies may cause migraine is also duly emphasized by Allbutt.—*Medical Record*, July 11, 1885.

TOXIC AND NARCOTIC PROPERTIES OF OIL OF SASSAFRAS.

The public and the profession are at variance respecting the medicinal virtues of sassafras, the former esteeming the root highly for its supposed capacity to "purify the blood," while the therapeutist has little, if any, faith in it. The French and American pharmacopœias carry the drug still on their list, though its practical utilization is almost nought. It has been alleged, however, that 2 drops of the essential oil of sassafras mixed with smoking tobacco eliminate its toxic properties and protect the tentative young smoker from the otherwise inevitable protests of nature. DR. HILL has given this matter his special attention (*La Presse Médicale Belge*, No. 10, 1885) without finding this supposition verified.

Experimenting further with the essential oil of sassafras, Hill soon gained the conviction that the drug, far from being an inert body, gave unerring testimony of being a powerfully toxic drug. This result was reached by numerous experiments on dogs, cats, and mice, and corroborated by a case of poison-

ing, through the oil, occurring in a man. It is to be regretted that Hill's researches were too general in character to make out, or at least suggest, a practical therapeutic utility for the medicine.

A COMPARISON OF THE ANTIPYRETIC PROPERTIES OF ANTIPYRINE AND THALLINE.

In a paper on antipyretics, published in the *Canada Medical and Surgical Journal* for July, 1885, Dr. James Stewart, in a careful study of the action of antipyrine and thalline, concludes that both agents have a very certain action, for, when given in appropriate doses in cases attended with considerable pyrexia, they reduce the fever. They both act more powerfully as antipyretics in the pyrexia of pulmonary tuberculosis and typhoid fever than that of any other disease. When antipyrine is administered, the temperature commences to fall in from one to two hours after, and continues falling for a period of from four to six hours, when the maximum fall is reached. Thalline is somewhat longer in causing a fall of temperature, taking usually three hours before any marked effects are noticeable; but once the effects are manifest, the maximum depression is quickly reached, usually within two hours after.

As regards the duration of the antipyretic effects, the fall in the cases of antipyrine lasts usually twelve and even sometimes sixteen hours, but with thalline seldom longer than six hours.

The subsequent ascent after antipyrine is somewhat slower than it is with thalline.

With respect to untoward effects, neither agent can be said to be perfectly free from them, but they are less marked after antipyrine than after thalline. Both cause more or less sweating, but with neither is this a contra-indication of any moment. Rigors frequently attend the subsequent ascent of the temperature after thalline, while they are extremely seldom seen after antipyrine. Both cause exanthems, which quickly disappear after the effects pass off.

In estimating the positive qualities of an antipyretic agent for evil, by far the most important point to take into consideration is the influence that it exercises on the heart. An antipyretic which has a cardiac depressant action is a two-edged tool. This is the reason that kairine has been practically discarded from practice. In full antipyretic doses it is apt to cause symptoms of collapse. It is the possession of these qualities that makes large doses (20 grains and upwards) of quinine such a dangerous remedy. Salicylic acid is not free from this action either. With regard to antipyrine, no indisputable case has been brought forward where any symptoms of collapse have been apparently directly due to it. As much, however, cannot be said of thalline.

From the knowledge we at present possess of these agents, we may conclude that they are equally effective, but that antipyrine is the safest. Whether it is absolutely safe when given in proper doses remains to be seen.

As regards the comparison of the antipyretic action of antipyrine, quinine, and the salicylates, there can be no question whatever about the far greater efficiency of antipyrine. Its action is certain. The antipyretic action of quinine and the salicylates, on the other hand, is far from being so, if we exclude the action of the former in malarial fever and of the latter in acute rheumatism. He who relies on the anti-febrile properties of either of these drugs in pulmonary tuberculosis or typhoid fever will meet with frequent and great disappointments. Further, they both constantly give rise, in full antipyretic doses, to the unpleasant group of symptoms known as "cinchonism," and not uncommonly we find their cardiac depressant action present in a greater or less degree.

There has been a good deal of speculation over the supposed mode of action of antipyrine and thalline in reducing temperature. It is highly probable that both of these agents have a direct action in lessening the production of heat. The reduction they effect is certainly not wholly due to a vaso-motor paresis, for the fall generally commences before the patient begins to sweat, and it is as pronounced in those cases unattended with sweating as in those which are. Further, they effect reduction of the temperature when agaracine (a powerful anhidrotic) is simultaneously administered with them. Whether they have a direct anti-parasitical action or not has not been shown or rendered even probable. Neither, as yet, have been shown to have any power directly of influencing the duration of any of the febrile diseases.

ON THE FUNCTIONAL EMOTIONS OF THE STOMACH, PYLORUS, AND DUODENUM.

The scanty observation hitherto made on the peristaltic movements of the stomach and its functionally most important appendages, and the growing interest in everything that

concerns the physiology of nutrition, render the observations of PROF. ROSSBACH, detailed to the recent Congress at Wiesbaden (supplement to *Centralb. f. klin. Med.*, May 20, 1885), well worthy of special attention.

The peristaltic movements of the well-filled stomach are very faint at first, and grow in intensity for four to eight hours. Only the portions contiguous to the pylorus participate in this motion, while the fundus and neighboring parts remain absolutely quiescent. The contractions, beginning always in the middle of the stomach, grow deeper and deeper as they approach the pylorus, and take an undulatory course, until in about twenty seconds the pylorus is reached. Cold water, unless excessive, likewise warm water, increase the contractions, while large quantities of cold water check them. Profound narcosis, emanating from either morphine or chloroform, likewise weaken these contractions. The same effect is produced by cutting the spinal cord near the second cervical vertebra, also by cutting the vagus near the œsophagus, or the œsophagus near the cardiac orifice. The cutting of the cervical section of the spinal cord removes the moderate tension which the stomach exerts normally on the ingested food. Faradic irritation applied on the serous lining, after severing of the spinal cord, or cut œsophageal vagus (*i.e.*, the nerve near the œsophagus), cause deep local contractions, but no peristaltic movements. The empty stomach is small, flabby, and either entirely motionless or showing but feeble contractions.

The pylorus is during the entire period of digestion firmly closed, and does not permit a drop of the gastric contents to escape into the duodenum for four to eight hours. Even the force of the finger does not succeed in gaining admission to the intestine. The emptying of the stomachic contents into the duodenum proceeds suddenly, under great pressure, and in fits and starts. Plenty of cold water is rapidly removed from the stomach through the suddenly-opening pylorus; warm water, on the contrary, does not succeed in opening the pylorus. Cold water is more slowly resorbed than warm water, owing to the cold and consequent local anæmia.

The duodenum shares the quiescence of the pylorus during the digestive act without corresponding to any stimulants. But the secretion of the intestinal juice, of the bile and pancreatic juice, proceeds without interruption. The bile is forced to empty itself into the duodenum through the contractions of the diaphragm, and not, as erroneously hitherto supposed, through those of the gall-bladder. Shortly before the entrance of the food into the duodenum the latter begins its peristaltic movements, which continue until the stomach is completely emptied. As muriatic acid in different degrees of concentration never caused contractions of the duodenum during its stage of rest, the duodenal contractions cannot be referred to the stimulus of the acid gastric contents, but suggests a nervous connection between the innervation of both viscera.

TREATMENT OF CONGENITAL HYDROCELE.

In a paper read before the Obstetrical Society of Philadelphia on June 4, 1885, on the surgical treatment of infants, DR. WILLARD (*New York Medical Journal*, July 18, 1885) held that *congenital hydrocele* rarely requires much surgical interference beyond an evaporating lotion of chloride of ammonium or alcohol, as a few weeks will often close the canal, if hernia does not coexist,—a fact which can be determined by non-translucency and capability of reduction. Should the connection with the peritoneum fail to close, puncture, with the application of a truss, will usually complete the cure. A hydrocele with closed canal is better treated by tapping and injection than by seton. The diagnosis between *encysted hydrocele* of the cord, *hernia*, and *undescended testicle* is sometimes difficult; but if the surgeon remembers that the former is simply a cyst in some unobliterated portion of the peritoneal coat of the cord, that its rounded shape can be detected if it is pulled well down into the scrotum, that it is usually translucent, that the impulse is not so decided as in the case of hernia, that it returns to the abdomen only by being pressed upward and not with a slip and gurgle, he will rarely be led astray. A hernia may coexist with either of the above-mentioned conditions, but, if non-adherent, careful isolation will settle the diagnosis. Should the hernia become strangulated or the non-descended testicle become inflamed and infiltrated, the most careful examination will be necessary. In retained testicle, its absence from the scrotum will be the first point in arriving at a decision; but even in such a condition the organ might be within the abdomen and an encysted hydrocele present, or the testis might, as has recently fallen under his notice, slip into the tissues of the perineum and be exceedingly difficult to dis-

cover. In the case just mentioned it sometimes requires numerous manipulations to cause the missing organ to return to its place in the pouch. Should hernia and retained testicle both exist, a double purpose can be gained by drawing the latter down and pushing the former up and then applying a truss. The successful retention of the organ within the scrotum is a matter of great difficulty, and removal is scarcely justifiable in young persons unless pain or inflammation ensues. Extirpation, if required in later youth, will probably not interfere with the procreative power of the individual, since one gland will supply all requisite material, and the affected one is practically useless from atrophy, even if it is not devoid of tubular structure. Traction is of little service, as manipulation tends to increase the sensitiveness of the organ.

GENITAL TUBERCULOSIS.

Dr. Richard reported the following interesting case recently to the *Société médicale des Hôpitaux* of Paris: A young man of 22 years of age, without any traceable hereditary taint, contracted a blennorrhagia, complicated with orchitis, from a robust and to all appearances healthy woman. The discharge not disappearing under ordinary measures in three months, he entered a hospital, where the diagnosis of chronic cystitis was made out, based chiefly upon the persistent appearance of blood in the urine. Soon after a peculiar cough and direct evidences of tubercular infiltration appeared, while the cystitis continued. The urine was examined for bacilli with negative results. Rectal examination revealed an indurated prostatic gland. Finally the patient presented all the symptoms of laryngeal and pulmonary tuberculosis.

To resume, we find blennorrhagia, after three months vesical tuberculosis, and three months later laryngeal and pulmonary tuberculosis.

Richard does not hesitate to ascribe the tubercular cysto-prostatitis to infection during coition, and the question arises, Was the blennorrhagic pus itself tubercular? Richard believes this may be answered in the affirmative. —*La Presse Médicale Belge*, No. 10, 1885.

THE TREATMENT OF CHRONIC OTITIS MEDIA.

Dr. W. W. Seely, of Cincinnati, read a paper with this title at the recent meeting of the American Otological Society (*New York Medical Journal*, July 25, 1885), which closed with the following conclusions: 1. Only long observation (often lasting over months) in each case could determine whether treatment should be continuous (daily) or interrupted,—*i.e.*, perhaps daily for a week, followed by an interruption of some weeks or months. 2. Only experience in each case could inform us whether treatment was to be entirely directed to the middle ear, or entirely to the naso-pharynx, or combined against both. 3. Only experience in each case could inform us whether injections into the cavitas tympani were called for. Under this head it was stated that direct medication, either of the middle ear or the naso-pharynx, as routine treatment, was unwise till simple inflation had failed. 4. Mechanical dilatation of the tubes was rarely necessary or advisable; only in extremely dry states of the tube was dilatation followed by much success. 5. Hearing-tests were not reliable, and hence patients with great deafness, great loss of bone-conduction, etc., should not be sent away till the test by trial had been gone through with. 6. Simple inflation failing, the greatest attention should be given to the naso-pharynx, even though it was apparently in a fair condition. 7. Syringing, douching, and swabbing the naso-pharynx should be abandoned.

HYDRARGYRUM FORMAMIDATUM IN SYPHILIS.

New remedies are naturally treated with a certain reserve until by thorough clinical tests they have earned, as it were, our confidence. In syphilis any remedy would be sure to be welcome which could prove an even moderate influence over the affection, as the present standard treatment is, for more than one reason, objectionable.

Dr. Carl Kopp, of Breslau, publishes his experience with Liebreich's new anti-syphilitic remedy, the formamidate of mercury, in the *Vierteljahresschrift für Dermatologie und Syphilis*, No. 1, 1885. To establish the comparative value of the new remedy, Kopp gives a brief clinical review of the various modes of treatment in vogue in different countries, which is certain to interest our readers.

The inunction-cure, first introduced by Siegmund, has in Germany always enjoyed considerable reputation, while its disadvantages are numerous and well known. Nor is the French method of using either the sublimate pills or those of the proto-iodide of mercury free from objections, the principal ones

being the ill effects on the digestive tract. The fumigations and baths are almost wholly useless. The subcutaneous injections were first introduced by Ch. Hunter, Hebra, and Berkeley Hill, but did not gain popularity until Lewin and Bamberger showed their intrinsic value and absence of irritation in the form of the albuminate and peptonate of mercury.

A great preference for the injection of the formamide of mercury, according to Schmitt, is the comparative absence of pain. After a couple of injections a sort of habit takes place, as in the case of the morphine injections. Abscesses or infiltrations at the point of injection were not observed. The simultaneous exhibition of iodide of potassium is very recommendable, according to Lassar, while Liebreich fears a chemical reaction between the two drugs, and therefore disapproves of this combination. Hoffmann, Zeissl, and Finger have also tried the formamide of mercury, but could not find any superiority over other preparations of mercury; nor were they convinced of the less painfulness of the remedy.

The thus conflicting testimony of the eligibility of the formamide induced Kopp, who had charge of the syphilitic clinic at Breslau, Prussia, to subject the drug to a more exhausting trial than had been done before. Two hundred cases came altogether under observation.

(To be continued.)

SALICYLATE OF IRON IN RHEUMATISM.

Dr. C. C. Duffy writes to the *Medical Record*, July 11, 1885, to call attention to the value of salicylate of iron in the treatment of rheumatism, particularly when occurring in the subacute form. The impoverishment of the blood, so commonly occurring in the later stages of an attack of rheumatism, is to be attributed, he believes, not only to the disease itself, but also, when salicylic acid is exhibited, to the action of this substance upon the iron of the blood. He was in the habit, for a time, of prescribing some form of iron in alternation with salicylate of sodium, but met with no signal success. He then determined to exhibit the remedies in combination, and has had most satisfactory results. He uses a mixture each dessertspoonful of which contains 8 grains of salicylic acid, 4 grains of sodium salicylate, and 1 grain of ferrous malate. This is the usual dose, though sometimes even double the quantity is given.

Dr. Duffy relates two cases of a number in which he has used salicylate of iron. The first case was that of an engineer, 26 years of age, suffering from an acute attack of rheumatism involving both knees and ankles and the left elbow. The salicylate of iron mixture was given in dessertspoonful doses every four hours, and at the end of three days the patient was able to return to his business, and has remained well. The second case was one of an acute exacerbation of chronic rheumatism occurring in a domestic 22 years of age. She had had her first attack some three years previously, and for the past six or eight months had never been free from pain, though able to perform her ordinary duties most of the time. The salicylate of iron mixture was given in the usual dose four times a day. At the expiration of about a month she was entirely relieved. In neither of these cases were any local applications made to the affected joints, nor were any other remedies employed. In a number of other cases a similar treatment was followed by equally good results, and in no instance was it necessary to resort to any other medication.

MALARIAL TETANUS.

The *Raccoglitore med.* cites in two different numbers two different instances of tetanus caused by malarial infection. One case is recorded by Lurini, the other by Mazotti. A patient of the latter physician was cured of malaria, and discharged from the hospital. A new exposure to cold and dampness brought him again to the hospital, but not with his usual malaria of a tertian type, but with a pronounced tetanic affection. Six applications of 1½ dr. of salicylate of sodium per rectum effected a cure on the third day, so as to permit his discharge. The very rapidity and completeness of the therapeutic interference made Mazotti believe that it was not a case of ordinary rheumatic tetanus, but one having a malarial basis.

A NEW METHOD FOR PRODUCING ANÆSTHESIA.

About three years since M. Brown-Séquard announced that he had discovered a new method of producing anæsthesia, and that under the influence of an irritation of the mucous membrane of the larynx sensibility to pain disappeared more or less completely in all parts of the body. This result he attributed to an inhibitory influence exercised by the

superior laryngeal nerves upon the nerve-centres. He has since continued his experiments upon monkeys and upon himself, and has recently reported his results to the Academy of Sciences. He states that he has found carbonic acid and the vapor of chloroform to be the most powerful agents for producing the necessary irritation of the larynx, but this is dependent upon these substances not entering the lungs, since they thence pass into the blood and prevent the laryngeal nerves from producing analgesia without sleep. Considerable difficulty, however, was experienced in applying either of these agents to human beings, and only a partial success was obtained by effecting the inhalation of pure air during two-thirds or three-fourths of each respiration, and then finishing the inhalation with carbonic acid, which had to be expelled immediately. Although an analgesic effect was sometimes manifested rapidly, it was occasionally necessary to continue the inhalation of carbonic acid gas in this way during twenty minutes or more. It was found, however, thus possible, without causing sleep or interfering in any degree with the mental powers or voluntary movements, to produce a nearly-complete analgesia of the skin continuing nearly forty hours, a cessation during two days of pains from various causes, and the complete disappearance of any excessive feeling of fatigue under which the patient might be suffering before the administration of the gas. In the case of monkeys, where the irritation could be more effectually applied, it was evident that analgesia could be produced, securing, without sleep, insensibility, in respect to wounds, lasting ten days or even longer.—*Pharmaceutical Journ. and Trans.*, June 27, 1885.

ON THE STRUCTURE OF GALL-STONES.

EBSTEIN has demonstrated the required presence of an organic binding-substance besides the bone crystalline element. This putty-like matter is excreted by the gall-bladder or its channels, and forms a fibrous stroma around the crystalline structure. Therapeutically the knowledge of the existence and origin of this putty-substance is of importance, as it teaches the impossibility of gall-stones being formed without an affection of the gall-bladder or its duct. Hence the therapeutic action of remedies can be explained by their healing power over the local gall-bladder or duct affection, and by the thus-resulting abstracting of a constituent requisite for the growth of the stones. Turpentine and the alkali-sulphurous springs are, in fact, very effective anti catarrhal remedies. —*Centralblatt f. kl. Med.*, No. 17, 1885.

THE EMPLOYMENT OF DIGITALIS IN ACUTE FEBRILE DISEASE.

Two purposes have been sought to be accomplished by the use of digitalis in acute febrile diseases. One has been to reduce the febrile temperature ; but the doses which have been found valuable for this purpose are so large that they can hardly in ordinary practice, having regard to the other physiological properties of the drug, be considered safe ; while even so used it cannot compare as an antipyretic with quinine or its allies of more modern introduction. The other purpose for which digitalis has been used in acute fevers is to give strength to the action of the weak heart and to diminish the frequency of the pulse. There are undoubtedly two very common diseases in certain stages of which any remedies possessing the properties attributed to digitalis must be deemed most valuable. One of these is croupous pneumonia, where we know that often the supreme question of prognosis is whether the right ventricle will bear the overwork imposed upon it. The other disease is typhoid fever, and here also heart-failure, with the consequent hypostatic congestion of the lungs, is often the prime symptom which requires attention. According to DR. HENRY F. A. GOODRIDGE (*British Med. Journ.*, July 4, 1885), the favorable results which might be expected from the physiological action of this drug have not been realized in clinical experience, and he publishes a table of twelve cases each of croupous pneumonia and typhoid fever, in which tincture of digitalis formed the principal treatment. In every instance of recovery in these twenty-four cases, with one doubtful exception, the pulse was found not to fall to any appreciable degree under the administration of digitalis until the occurrence of defervescence, while in three cases which succumbed the pulse-rate increased in spite of the digitalis. This result Dr. Goodridge believes may be attributed to the fact, as pointed out by Drs. Brunton and Cash, that a high temperature lessens inhibitory power in the vagus centre in the medulla to such an extent that digitalis, and probably all drugs which act like digitalis on this centre, lose to a great extent their power to restrain the action of the heart and slow the pulse. The administration of digitalis, or of drugs which act like it, to patients in febrile

conditions, is therefore likely to have much less effect on the pulse than at the normal temperature, and if the temperature be very high, they may have no effect at all while this persists. It does not, however, follow, as a practical outcome of this subject, that digitalis should be discarded in our treatment of acute febrile diseases, for it is possible, by combining some antipyretic, such as quinine, that a better success may be obtained. If we were not able to hasten on the defervescence by this means, a good remission would be no small gain, whereby the action of the vagus would be for a brief space restored, and the digitalis would in the same measure find its opportunity. Moreover, it should not be forgotten that the crisis, or rapid defervescence with critical discharges, in fevers, and particularly in pneumonia, is in itself not unattended with danger. Symptoms of collapse may supervene, nay, a fatal collapse. Digitalis, if given judiciously, and in moderate doses, before the crisis, is some protection against this formidable event.

In conclusion, it is most important to bear in mind that the digitalis, given with so little manifest result during the fastigium, may take effect with cumulative energy after the crisis; otherwise, the unwary practitioner, getting no immediate response, may be tempted to push the dose, with the result by and by, when defervescence sets in, of having a grave toxic explosion. Drs. Brunton and Cash append a caution on this point, and more than one of Dr. Goodridge's cases give a hint in the same direction.

ON GASTRIC AFFECTIONS WITH A MALARIAL BASIS.

ROSENTHAL, of Vienna, observed seven cases of stomachic affections clearly traceable to a malarial element (*Deutsche Medizinal Zeitung*, May 21, 1885).

Several months usually pass before the latest malarial virus manifests itself in gastric difficulties. The absence of heightened temperature, febrile paroxysms, and splenic engorgement often leads to diagnostic and therapeutic errors. The marked intermittent fever which is often associated with neuralgia may also produce pains in the epigastric region; in other cases malaria assumes the mask of dyspepsia, intermitting vomiting, typical gastric and intestinal pneumatosis, and of intermittent colic. This dyspepsia is usually mistaken for intestinal catarrh or enlargement, or if associated with emaciation and cachexia, for gastric ulcer or carcinoma. The more frequent occurrence of this form of dyspepsia in nervous persons, and the long-remaining nervous symptoms and psychic depression after the reappearance of the more urgent symptoms, point to the nervous element as an important etiological factor of the affection. Such at least is Leube's view, while others believe in local alterations, such as an œdematous infiltration of the gastric mucous membrane. Rosenthal gives some further diagnostic suggestions: Cachectic, sallow appearance, and a rapid emaciation in young individuals with cardialgic and dyspeptic troubles, point more to malaria than to carcinoma, but may also indicate nervous dyspepsia. Intercurring neuralgia (chiefly intercostal) corroborates the diagnosis of malaria.

The question of the origin of this malarial cardialgia is not yet definitively settled. Rosenbach regards the affection as an irritation phenomenon emanating from the engorged splenic capsule, while Rosenthal leans toward the assumption of an irritation of the bulbous vagus-centres, as also known to exist in the cardialgia of tabes and vomiting, in hysteria and neurasthenia.

As to the therapeutics of the affections, Rosenthal holds that quinine is not contraindicated, but, on the contrary, acts well, provided large doses are given and it is given, if necessary, as enema, suppositorium, or hypodermically. Besides quinine, Fowler's solutions (gtt. 5 to 8 three times daily), and tincture of eucalyptus globulus (f℥i t. d.) are recommendable. Quinin. bor., internally (7 to 15 grains t. d.), or subcutaneously with glycerin and water, are also used with advantage; quinin. arseniat. (⅓ grain t. d.) is also well borne, while quinin. salicyl. is worth trying. In chronic cases faradization of the spleen and the springs of Karlsbad, Kissingen, and Ems suggest themselves.

A NEW TREATMENT FOR VESICO-VAGINAL FISTULA.

DR. B. RUPPE, of New York, recently read a paper before the Medico-Chirurgical Society of German Physicians, in which he described the circumstances which led him to the discovery of a novel method of treatment of this condition. He had been hastily summoned to attend a primipara, 34 years of age, who was in labor. She had had a severe chill and high fever the night before, and labor had commenced and the bag of waters had ruptured previous to his arrival. The pains were sluggish, and the presenting part could

be felt only with the greatest difficulty. It was not until the following day that the pains returned with sufficient force to bring the head within reach, when the forceps were applied and the woman was delivered of a dead child. More notice was then taken of the other symptoms, and it was found that the woman was suffering from typhoid fever; and three days later it was discovered that she also had a vesico-vaginal fistula of sufficient size to permit of the introduction of the index-finger into the bladder. Dr. Loewe saw the case at this time, and it was determined to operate by Marion Sims's method after the patient had recovered from the typhoid fever. The patient being wretchedly poor and unable to provide the linen necessary for cleanliness, it became a problem how to obviate the irritation and other evil consequences following the constant dribbling of urine. Finally a large wash-tub was procured and provided with three pillows,—one for the back, one for the knee bend, and the third to sit upon.—*Medical Record*, July 11, 1885.

INCUBATION OF SMALLPOX.

The period of incubation of the zymotic diseases has been pretty accurately ascertained in each instance. Of course, we can only speak of the limits between which the germ lies dormant, as it were, in the several affections, as this time actually is very variable. In smallpox we find different data in different writers. VINAY, of Lyons, gave this matter his attention during two recent epidemics of smallpox in Lyons (*Revue de Méd.; Centralblatt f. kl. Med.*, April 25, 1885).

In fifteen cases the period of incubation was exactly twelve days; in two of these cases vaccination was successfully performed after the diagnosis was established, which, however, neither prevented the disease nor altered its incubation-period. Vinay did not observe the generally-held exclusion of other exanthematous diseases in regard to variola,—at least, not in the case of measles.

The varying period of incubation depends, in his opinion, upon the different localities of entrance of the variola-poison into the system. In warm countries, however, it is generally conceded to be shorter than in cold climates.

The important question whether smallpox is contagious during the stages of incubation the author does not venture to answer, but regards it as possible that such is the case. He feels, however, assured as to the contagiousness of the disease in its very initiatory phase, even before the appearance of the eruption.

Another important question is, whether vaccination is still useful in the stage of incubation. Vinay thinks that vaccination in this period could not avert the disease, but may be able to modify its intensity, provided vaccination takes place during the first days of incubation.

PYROGALLIC ACID—ITS PREPARATIONS AND USES.

This drug has acquired great importance in dermatology as well as in photography. It is a triatomic phenol, and is not, therefore, properly speaking, an acid; it is in white, inodorous scales, and soluble in three and one-half parts of water, readily dissolves in alcohol or ether, and is fusible at 230° F.

When pure, this acid has no influence upon litmus-paper; it has a strong affinity for oxygen, becoming darkened when exposed to air or light.

The great difficulty in its use is in finding a preparation that will not scale off. The one seemingly best adapted to this purpose is given below, as recommended by DR. B. MERRIL RICKETTS (*Cincinnati Lancet and Clinic*, July 11, 1885):

Collodion flexible, ℥i;
Ac. pyrogallic, gr. xlvii;
Ol. ricini, gtt. x.

This will remain on the skin for three or four days, and is, indeed, the best-known form at present to use in the treatment of chronic eczema and psoriasis.

Its cleanliness is a desirable feature, as it can be used in this form without soiling the clothes of the patient.

A twenty per cent. ointment applied to an epitheliomatous ulcer will, upon several applications, with active rubbing, destroy the new cell-growth, as there is so little vitality that it is impossible to resist its action, while the healthy granulations will remain unaffected.

The process of "sloughing" is hastened by the application of flaxseed poultices at a temperature of 110° F., changing every few minutes. After these applications for ten or twenty hours, follow with dressings of carbolized olive oil for one or two days, or, as is sometimes better, the mercurial plaster, until completely healed.

When the ulcer has a hard indurated, elevated border, it may be found necessary to

scarify or curette, that the ointment may be allowed a raw surface upon which to act.

Or in those cases of lupus where the nodules have not broken down and become ulcerative, its effect may be more active by first using the dental drill or hook or by scarification (which is better), after which the ointment should be well rubbed in, thus allowing a direct action upon the diseased tissues.

There is another combination by which this remedy may be used with marked success, as follows:

Ac. pyrogallic, ʒiii;
Ac. salicylic, ʒi;
Collodion flex., ʒiv.

This forms an excellent coating when applied upon the extremities, and should be applied immediately after removing the scales, night and morning.

Pyrogallic acid was first used by Jarisch, in the treatment of psoriasis. Its use is not accompanied by pain, nor does it cause inflammation of the surrounding skin; although slower, its action is as effectual as that of chrysarobine.

There is danger, when used extensively, of absorption, characterized by fever and accompanied by strangury and greenish or blackish urine.

The commonest use of pyrogallic acid has been in the form of a ten or twenty per cent. ointment, it being sometimes necessary to use a stronger or weaker preparation, as the case may require.

It is especially indicated in those cases of cell-proliferation where there is a low degree of vitality, such as is found in epithelioma and lupus; more especially these forms of new growth, as they are more superficial than either sarcoma or carcinoma, being situated within or about the osseous tissues.

Even in those cases of psoriasis or chronic eczema where the use of chrysarobine might be indicated, it has been found to be of great benefit, especially when confined with flexible collodion. This forms a smooth coating which excludes air and water, and in the course of a few hours becomes of a dark-brown color.

Sometimes, as in those cases of ulcerative epitheliomæ, benefit may be derived from the application of the dry crystals, followed by a thin coating of vaseline or simple ointment.

TREATMENT OF INTERMITTENT FEVER WITH TINCTURE OF IODINE.

There are, as every practitioner knows, cases of such profound malarial intoxication as to resist quinine, arsenic, and every other anti-periodic treatment. Again, there may be good reasons against the exhibition of either of the named drugs. At all events, it is well to know that iodine is another drug which, even if quinine and arsenic have failed, may be exhibited with a fair prospect of success.

SCHABLIOVSKY treated 26 cases of intermittent fever with tincture of iodine, with perfect success in each instance, as stated in the *Russkaja Medicina*, No. 6, 1885. Of these 21 cases were of the quotidian, 2 of the double quotidian, and 3 of the tertian type. In 3 cases quinine and arsenic had failed previously. No untoward after-effects were observed in any case.

The tincture has to be fresh prepared, and of a strength of one to ten; 8 to 10 drops are to be given in sufficient water three times daily between the paroxysms.

Other trials of iodine in malarial fever having also proven the usefulness of the drug in this affection, it would be desirable to have a large statistic material by which to gauge its value in comparison to that of quinine.

Internal antisepsis seems actually destined to play a conspicuous rôle in the treatment of zymotic diseases.

THE CURE FOR TONSILLITIS.

Gargles, inhalations, mixtures taken internally, and bleeding have all been tried, with various success, in attempts to alleviate or cure this disease. Aconite and belladonna have been used, with varied success, in the attempt to cut short the attack. Only comparatively recently the valuable properties of bicarbonate of sodium were referred to in this journal in the treatment of tonsillitis, and in the *Australasian Gazette* for May 15, 1885, MR. T. M. KENDAL states that he has been using this drug in this affection for the last four years, and, as yet, it has never failed to produce a good result. The remedy was introduced to the profession by M. Gine, of France. He claimed that by the use of the drug he was able to cut short an attack of tonsillitis twenty-four hours after the application of the powdered salt to the tonsil. Such a rapid cure has, however, never occurred in Mr. Kendal's practice, but he has had very good results in thirty-six and forty-eight hours, although in elderly people the attack has lasted five or six days. The drug is well worthy the attention of the profession on account of the absence of harmful properties, and is, without doubt, also useful in cases of

an inflammatory sort, either due to the influences of cold or to an exhausted nervous system.

THE TREATMENT OF TYPHOID FEVER IN THE MILITARY HOSPITAL OF MUNICH.

DR. A. VOGL'S report on the treatment of no less than eight thousand three hundred and twenty-five cases of typhoid fever during the last forty years in the military hospital of Munich must necessarily be a document of uncommon interest to every practitioner in every land (*Deutsche Medizinal Zeitung*, No. 41, 1885).

It is important to note that the mortality of the disease, though covering wide limits, entertains a distinctly recognizable relation to the instituted therapeutic measures. The ancient heroic treatment of abstraction of blood, absolute diet, and strong purgation called for a death-rate of twenty-one per cent. A partly expectant, partly antipyretic, medication (quinine, wine, cold baths, tonic diet) reduced the rate to 18.1 per cent., while Brand's treatment (the cold-water treatment*) lowered the fatal record to 12.6 per cent. We abstract here some vital conclusions as to the relation of treatment to mortality:

1. Comparative trials with Brand's procedure rigidly executed on one station and with the same treatment combined with antipyretic remedies speak unmistakably in favor of the latter treatment.

2. In spite of the general lowering of the death-rate occasional heights of 10.8 to 18.8 per cent.—that is, as high as any time previous—are found in every method of treatment.

3. The methodical treatment,† with a mortality rate of 2.7 per cent., never exceeds 4.7 per cent., even in regions in which typhoid fever abounds.

4. The combined cold-water treatment occupies a rank between the methodical treatment of the present time and the ancient procedures, approaching in results rather the latter.

5. The methodical cold-water treatment has effected the greatest reduction of the death-rate.

The excessive febrile temperature is still the most eligible point of attack of typhoid fever, its reduction the criterion of success, as the violence of its course is modified in proportion to the falling temperature.

To reduce the temperature during the period of the first two weeks to anything approaching the normal standard is rarely accomplished, even by the most energetic method of withdrawing the heat by cold water. The combination of the cold-water method with quinine gives but poor results, while the exhibition of salicylic acid produces a sure and decided effect, but, unfortunately, is fraught with danger to the functional integrity of the organism. The other more recent antipyretics do not appear sufficiently reliable nor as yet sufficiently tested.

The constant (day and night) combating of an excess, an exacerbation of high temperature, through frequently interposed remissions, however slight and brief, insures a moderate and desirable reduction of the fever-heat. This is the aim of Brand's method. Its special influence on the pathological processes of the intestines, on the cerebral functions, respiration, and circulation, is expressed by the complete elimination of the so-called "typhoid state" and the avoidance of complications,—the signal danger of typhoid fever. The influence of special, airy tents compared with that of the ordinary tenement-house is very striking.

The treatment with prolonged or permanent warm baths is capable of achieving not only an equal but even a greater reduction of the febrile temperature than the employment of cold baths. Still, this method is neither sufficiently energetic nor reliable in cases of very high temperature to recommend its general introduction. Besides, it is difficult to carry out practically in hospitals.

Both the cold- and warm-water treatments have the advantage of absolute harmlessness and an uninterrupted action on the pathological processes over the treatment with internal antipyretics. The drugs no doubt reduce the temperature, but reduce at the same time the propelling power of the heart, and thus weaken the power of resistance—an important factor—of the system against the disease.

Internal antisepsis having not yet received sufficient clinical trial, the antipyresis of the cold bath must still be our great stand-by, and actually excels in harmlessness and energy of action every other hitherto-known method of treating typhoid fever.

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* And internal antipyresis (frequently combined).

† The *Deutsche Medizinal Zeitung* fails to state what is meant by methodical treatment; those interested particularly in the subject are referred to the *Deutsche Archiv f. klinische Med.*, vol. 36, Nos. 5 and 6.

FLUID EXTRACT OF MANACA IN RHEUMATISM.

Dr. G. M. Garland reports, in the *Boston Medical and Surgical Journal*, July 25, 1885, seven cases of rheumatism treated at the Boston dispensary service with the fluid extract of manaca, in many of which marked improvement resulted, even though treatment by other methods had previously failed. Although no true case of rheumatic fever presented itself during the trial of the drug, some of the cases exhibited severe local symptoms and great personal suffering. Of course, very few deductions can be drawn from so few trials, but it is safe to infer that the fluid extract of manaca does help some cases of subacute rheumatism, and therefore deserves a place among other remedies recommended for that class of diseases. It would also seem that the drug must be used in large doses—from half a drachm to a full drachm—in order to obtain satisfactory results. The remedy causes but little disturbance in the doses mentioned; only one or two of the patients in Dr. Garland's report complaining of a feeling of dizziness after using it.

THE TRANSPLANTATION OF LARGE SKIN-FLAPS ON FRESH WOUNDS.

Esmarch (*Centralbl. f. Chirurgie*, No. 29, 1885), of Kiel, speaking before the Wiesbaden Congress, referred to his success in numerous cases of making large tegumental graftings. He showed four pictures intended to illustrate the subject.

The first picture showed the nose of a lady who for the past ten years had suffered from a rodent cancer of the nasal bridge, and was twice operated upon in Berlin with the sharp spoon and subsequent thermo-cautery. A skin-flap of a proportionate size was taken from the left arm, and, after carefully removing all fatty particles, was fastened on four different places to the affected place, which had previously been carefully denuded, including its healthy margins. In four months there was but little difference in color between the transplanted portion and surrounding healthy tissues.

The second picture showed a pigmented mole at the external angle of the eye, which greatly disfigured the face. The mole was removed, and the loss of substance covered by two slender flaps taken from the arm. All three wounds healed rapidly by first intention. The third picture showed the gratifying results of the operation after three weeks. The fourth picture showed the healing of two flaps taken from the arm and transplanted to the chin, where a severe injury had necessitated the removal of a large skin-area.

The careful removal of fatty and loose cellular matter is of prime importance for the success of this operation. The flap must be considerably larger than the exact size of the denuded surface requires, as great contraction of the grafted surface always ensues. Strict antiseptic precautions are of course *conditio sine qua non.*

THE TREATMENT OF PSEUDO-MEMBRANOUS INFLAMMATION OF THE AIR-PASSAGES BY LARGE DOSES OF MERCURY.

The plan of treating pseudo-membranous inflammation of the upper air-passages by large doses of mercury, as introduced by Reiter, is far from being an established practice, though the method has slowly gained many advocates. There is still, however, the greatest difference of opinion as to the period of the disease in which the greatest benefits are to be derived from the mercurial plan of treatment, as to the preparation of mercury to be employed, as to the manner in which it should be administered, and as to how long the treatment should be continued. Dr. O. T. Schultze reports in the *American Practitioner* (July, 1885) two cases—one of laryngeal diphtheria and the other of true croup—in which the administration of large doses of calomel, dropped dry on the tongue at short intervals and continued until the danger was over, constituted the sole treatment. The first case was complicated by intercurrent croupous pneumonia, which came on four days after the appearance of diphtheritic inflammation of the throat. The early treatment consisted in the administration of small doses of calomel with extract of belladonna for the purpose of clearing out the gastro-intestinal tract, and the iodide of mercury in doses of $\frac{1}{32}$ of a grain was given with ipecac. As this treatment—that is, the administration of mercury in small doses—produced no improvement whatever, the child showing symptoms of severe blood-poisoning, calomel in $\frac{1}{5}$-grain doses, rubbed up with milk-sugar, was placed dry on the tongue every second hour and followed by water only after several attempts at swallowing had been made. As soon as this treatment was inaugurated the membrane disappeared, and the parts previously covered by it were seen to be red, raw, and worm eaten. Calomel treatment was be-

gun on the sixth day of the pneumonia, and, presumably, on the tenth day of the disease, as the child was first seen after having been sick for four days, and at first it was impossible to make any examination of the throat. As soon as the membrane had disappeared from the fauces the septic symptoms rapidly wore off, and were far less at the end of the second day of the treatment, though at this time the fever was higher than just after the membrane had separated. It is very doubtful as to whether this favorable action of calomel should be attributed to the mechanical action of the large dry powder, to its local action on the diseased part, or to some specific action. In the second case, that of true croup, calomel in large doses was the only remedial measure resorted to, except that while the fever was high $\frac{1}{12}$ of a drop of the fluid extract of aconite-root was combined with the calomel. This case also progressed to a favorable termination, although four days after the cessation of the calomel treatment, and three days after the medicine had been stopped, a mild dysenteric attack set in with febrile movement. This complication is probably of the same nature as the dysentery which follows the mildest type of corrosive sublimate intoxication resulting from the long use of this drug. Dr. Schultz thinks that these symptoms of mercurial intoxication might possibly be averted by free purgation with oil and turpentine for several days after the calomel treatment has been suspended, or until the stools lose their green color. This course was followed in Dr. Schultz's first case, and the symptoms of mercurial intoxication did not appear.

Reviews.

A System of Practical Medicine by American Authors. Edited by Wm. Pepper, M.D., LL.D.; assisted by Louis Starr, M.D. Vol. II.—General Diseases continued, and Diseases of Digestive System.

Philadelphia: Lea Bros. & Co., 1885.

The second volume of the "System of Practical Medicine" maintains fully the high standard of the first, and renders the great value of the series more certain than ever. Its contents are varied, and exhibit the same character—so noticeable in volume first—of independence of thought and expression, combined with extensive and careful reading. Avoiding the studied dulness of the compendium, the articles are complete without too great elaboration, and sufficiently distinct in manner and method from other articles in other systems of medicine already before the public. Vol. II. contains chapters on Rheumatism, Gout, Rachitis, Scurvy, Purpura, Diabetes Mellitus, Scrofula, and Hereditary Syphilis, finishing the section on the General Diseases. Of these articles, while all are excellent, the reader will perhaps feel more especially attracted to four of the number,—that on Gout, by W. H. Draper, M.D., an exceedingly well-written and original monograph, containing, besides a full study of the various theories of the causation of the disease, a plain denial by its author of the time-honored views concerning the diet suitable for the gouty, which have so often proved a stumbling-block to the credulous practitioner. To feed gout (for it amounts to that), to discard saccharine and amylaceous food in excess, to use stimulants and flesh diet,—this is the outline, filled in perhaps too liberally by some, for even the author would hesitate perhaps to recommend sound old port as a specific for gout. The article on Rachitis, by Abraham Jacoby, will be read with great interest, owing to the deserved reputation of its distinguished author. The style is at times peculiar, but one readily forgets that. The portion devoted to the proper feeding of infants, both as a prophylaxis and cure of rachitis, is simply invaluable. Dr. James Tyson's chapter on Diabetes Mellitus shows the work of a conscientious, thorough student, and contains exhaustive descriptions of all available tests for sugar; while Dr. J. William White's chapter on Hereditary Syphilis is especially practical in regard to the momentous but difficult question of whether syphilitics are to marry, and under what circumstances and limitations. Dr. White's rules will enable the reader to give the safest possible advice under all imaginable circumstances.

The Diseases of the Digestive System complete the remaining and larger portion of the volume. Dr. J. Solis Cohen contributes chapters on Diseases of the Mouth, Tongue, Tonsils, Pharynx, and Œsophagus, which contain about all on these topics which can be written in our present stage of knowledge. A careful study will convince most medical men of average reading and experience that they have something yet to learn, and something which will prove of daily use.

The next chapter, on Functional and Inflammatory Diseases of the Stomach, is by Dr. Samuel G. Armor; while Dr. W. H. Welch gives chapters on Simple Ulcer, Hemorrhage

and Dilatation of the Stomach, and one on minor organic affections of that organ. Dr. W. W. Johnston contributes chapters on Intestinal Indigestion, Constipation, Enteralgia, Acute and Chronic Intestinal Catarrh, and Cholera Morbus; while the general subject of Intestinal Affections of Children in Hot Weather is treated by Dr. J. Lewis Smith. Pseudo-Membranous Enteritis is by Dr. Philip S. Wales. Dr. James T. Whittaker gives us articles on Dysentery, Typhlitis, Peri- and Para-Typhlitis, Intestinal Ulcer, and Hemorrhage from the Bowels. Dr. Hunter McGuire, Intestinal Obstruction. Cancer and Lardaceous Degeneration of the Intestines is by Dr. J. Edmonson Atkinson. Drs. Thos. G. Morton and Henry M. Wetherill, Jr., give us the chapters on Diseases of the Rectum and Anus; while Dr. Joseph Leidy writes on Intestinal Worms. The remaining chapters are on Diseases of the Liver, by Roberts Bartholow, M.D.; Diseases of Pancreas, by Louis Starr, M.D.; Peritonitis, by Alonzo Clark, M.D.; and Diseases of the Abdominal Glands, by Samuel C. Busey, M.D.

We have here presented an enormous mass of information, research, and personal experience, by many different writers, on the several subjects of diseases of digestion and of the intestine and its allied organs. Any elaborate review of these articles is impossible in our limited space and from the nature of the subjects, the names of the writers being, in most instances, a sufficient indication of the great value of their contributions. It is evident that the second volume will do much to create and sustain the reputation of the "System of Practical Medicine."

E. W. W.

THE TEN LAWS OF HEALTH; OR, HOW DISEASES ARE PRODUCED AND PREVENTED; AND FAMILY GUIDE TO PROTECTION AGAINST EPIDEMIC DISEASES AND OTHER DANGEROUS INFECTIONS. By J. R. Black, M.D.

Philadelphia: J. B. Lippincott Company, 1885.

We will endeavor to do what the author, by oversight, has omitted to do, viz., present "The Ten Laws of Health" in proper shape, following the author's evident idea,—in the manner of the Ten Commandments. It makes the ten laws more sonorous and impressive.

Law first, "Thou shalt breathe pure air."—Now, without stopping to show what a condemnation the very statement of this law brings to those misguided beings who are in the habit of eating and drinking pure air, we would remark that this law is especially directed against the dwellers in slums, the habitues of evening entertainments, public school-children, the poor in alleys and byways, and perhaps most especially to those hardened offenders, city infants teething in second summers.

Law second, "Thou shalt take adequate and wholesome food and drink."—This commandment applies to bottle-fed babies and to those who eat everything at the table, to the dependents of the Eagle and other condensed nutriments, and to the citizens of Philadelphia in the matter of drink; to the hanger-on at the soup-house, to the starving everywhere.

Law third, "Thou shalt take out-door exercise."—Cripples must take heed, prisoners, lunatics in close confinement, and the bed-ridden.

Law fourth, "Thou shalt cover the body with adequate and unconstraining clothing."—This law is not, as one might at first sight suppose, directed at undertakers, but is especially binding upon the ragged and shoeless, the American Indian, the native African, the man of the ready-made clothing establishment, the young man in tight shoes, and the young lady in her first corsets.

Law fifth, "Thou shalt consider the sexual function solely as a means of reproduction."—This the impotent should ponder; this the proprietor of the "Damiana Lozenge" should take to heart, while it furnishes food for thought to the babe in the arms and the spayed victim of the ovariotomist.

Law sixth, "Thou shalt reside in the climate fitted to thy constitution."—The castaways, the Alexander Selkirks, the unfortunates whose lot is cast by birth on some deadly coast in the Tropics or at the North Pole will see at once the necessity of following the stern mandate.

Law seventh, "Thou shalt select and follow a pursuit in life which does not cramp or overstrain any part of the body, or subject it to irritating or poisonous substances."—To this law let the gold-beaters, the grinders, the coal-miners, glass-blowers, lead-workers, and hosts of others engaged in hundreds of occupations, take heed.

Law eighth, "Thou shalt be clean."—Thou shalt possess a bath-tub, soap, towels; and opportunity might also have been embodied in this law,—a law broken how often and how flagrantly let the coal-heaver and the chimney-sweep answer.

Law ninth, "Thou shalt be tranquil, and

take adequate rest and sleep."—Here the sinners admonished are the great army of overworked. The soldier on night-marches and in the turmoil of battle is doubly an offender. The physician who fails to sleep, though his night-bell is ringing; the man in sudden emergency or imminent danger; the dweller in the path of the cyclone; the victims of coma vigil; the morphine devotee struggling to free himself from his bane.

Law tenth, "Thou shalt not marry a blood-relation."—Those already married will take this to heart; those, too, who have no blood-relations,—the strangers in the land. The infant may begin to follow this law from his tenderest years, and may perchance, before puberty, have attained robust health in consequence. One may grow in moral as well as physical strength by refraining from marrying a grandmother. Many have thought that it was the offspring alone who suffered from consanguineous marriages, but, while the author does not specify, he evidently knows that the injury is more immediate; or should he have written, "Thou shalt not permit thy parents to be blood-relations"?—a law as hard to obey as Dr. Black's tenth law is fascinatingly easy.

Interwoven with these laws Dr. Black presents much valuable information. Especially has he elucidated the mysteries of the germ theory,—how "persons sick with infectious diseases are the breeding hot-beds from which the germs issue;" how to stop them from issuing; how to catch them flying; how to impale them and render them tame and harmless. This is the task of Dr. Black. The "public reader"—a character to whom the author often alludes—will no doubt become expert at this work. Could all the good advice given be followed, contagious diseases would probably disappear and life be saved a host of griefs and anxieties; but the millennium has not come, and the germ theory is not yet complete, and we look for no immediate diminution in reported cases of preventable disease as a direct result of Dr. Black's efforts.

E. W. W.

THE STUDENT'S GUIDE TO MEDICAL JURISPRUDENCE. By Jno. Abercrombie, M.D. Cantab., M.R.C.P., etc. Philadelphia: P. Blakiston, Son & Co., 1885.

Medical jurisprudence, while an exceedingly valuable study for all medical men,—since emergencies may arise in the career of any one demanding a knowledge of the subject,—is rather a medical accomplishment than a vital necessity. While so much is demanded of the student in so many other directions, a brief, concise, and reliable guide in jurisprudence is invaluable; something that will give a comprehensive view of the subject, that can be referred to in a hurry, and that can be depended upon as far as it goes. Dr. Abercrombie's "Student's Guide" is just such a work. The chapters on Signs of Death, Identity, Life Insurance, Pregnancy, Abortion, and Infanticide are especially noticeable as affording full information with great brevity. The style is easy. The book abounds in references for those desiring more extended information, and we can heartily commend it not only to students, but to practitioners who feel deficient in this allied branch of the healing art.

E. W. W.

REVUE SCIENTIFIQUE.

The following is a summary of the table of contents of the *Revue Scientifique* for the past month:

June 20, 1885:

History of the Sciences.—Aerial Locomotion before Montgolfier. By M. Gaston Tissandier.

Terrestrial Physics.—Meteorology in 1885. By M. A. Angot.

Medicine.—The Anticholeraic Vaccinations in Spain. By M. H. de Varigny.

Miscellany.—The New Hospital at Havre. By M. Gariel.

Book Notices.—Academic Address and Eulogies (J. B. Dumas); Treatise on Electrotherapeutics (M. Erb).

Proceedings of the Academy of Sciences of Paris.

Correspondence and New Inventions.

June 27, 1885:

History of the Sciences.—The Utility of Chemistry. By Diderot.

Geology.—The Volcanoes of Central America. By M. de Montessus.

Miscellany.—Pharmacy in the Seventeenth Century.

Proceedings of the Academy of Sciences of Paris.

Correspondence and New Inventions.

July 4, 1885:

The Conquest of Tonquin, from Unpublished Documents. By M. Harmand and General Bouet.

Zoology.—The Coloration of Animals. By M. P. Marchal.

Scientific Biographies.—Frerichs. By M. L. H. Pettit.

Military Art.—Cannons of Large Calibre in 1885.

Book Notices.—Mental Evolution in Animals (Romanes); Manual of Operative Medicine (M. Farabœuf); The Search for the "Jeannette" (M. Gilders).

Proceedings of the Academy of Sciences of Paris.

Correspondence and New Inventions.

July 11, 1885:

Ethnography.—The Movements of the Indus, and their Scientific Study. By M. G. Le Ben.

Military Art.—The Value of Musketry.

Geology.—The Geology of M'zab. By M. Ch. Amat.

Book Notices.—The Navies of the Ptolemies and the Romans (Jurien de la Gravière); Encyclopædia of Chemistry: The Aldehydes (M. Bourgoin); The Metallurgy of Silver (M. Roswag); The Metals and their Salts (M. Rousseau); Analytical Tables (M. Prunier).

Proceedings of the Academy of Sciences of Paris.

Correspondence and New Inventions.

Correspondence.

THE ADMINISTRATION OF QUININE.

To the Editors of the THERAPEUTIC GAZETTE:

GENTLEMEN:—Noticing in your issue of July 15 a quotation from the *Journal de Médecine* in regard to the administration of quinine several (eight) hours before the access of intermittent fever, I feel called upon to remark that Dr. Lucas-Championnière may have very properly "pointed out" the propriety of this course, but it is very far from being a *discovery* of his, since it is most distinctly stated in the classic treatise of Briguet (p. 599), published in 1855. Briguet also alludes to older writers in the habit of following a similar course. The late Dr. E. H. Clarke was in the habit of stating this point most distinctly in his lectures, and it may be the modesty of the senior editor of this journal which prevents him from remarking that in his text-book the proper period for the administration of quinine is said to be from eight to three or four hours before the attack is due.

It is my belief, however, that it is not quite exact to say that this should be done in order that the maximum absorption should take place at the time of the pronounced chill. If this were the object the interval of *eight* hours would be too long, since, when administered in a form favorable to absorption, quinine appears in the urine in from fifteen to thirty minutes, and about half—sometimes more than half—of a single dose is eliminated within *six* hours (as shown by the experiments of Kemer and of the writer). The maximum of cinchonism from a single dose of quinine occurs in less than eight hours after its administration.

The fact, however, which makes this theoretical error into a practical truth is that the forming stage of the paroxysm—that at which it can be most successfully attacked—begins some hours before the "chill" is manifest, and hence the drug has time to exercise its germicidal effect before the poison has outgrown the antidote, and before the nervous system has passed beyond the control of the heat-regulating centres. R. T. E.

THE POSITION OF COCAINE AS AN ANALGESIC.

To the Editors of the THERAPEUTIC GAZETTE:

GENTLEMEN:—The salts of cocaine have already attained an extensive therapeutic application in ophthalmic and aural surgery, and an assured permanency among useful remedies. It is but natural that sanguine hopes should be based upon an agent of such marked physiological and therapeutical properties as cocaine evidently possesses.

In the ardent enthusiasm which attends the introduction of such a promising remedy, it is not strange that extravagant claims should be made for it, nor that many should be disappointed in their attempts to verify these claims. In this way the possibilities of a new drug and its permanent place as a therapeutic agent are determined.

While cocaine has proven of the greatest utility in affections and operations upon the eye and all mucous membranes,—as the middle ear, larynx, and nasal passages,—it is subject to great limitation in its application to other parts, notwithstanding some experimenters and writers have claimed that, when applied to the skin, it will produce sufficient local anæsthesia to allow of painless incisions and minor operations. After satisfying myself that two and four per cent. solutions of the hydrochlorate of cocaine would fail to produce this local anæsthesia of the skin, I tried, in several minor operations, unimportant in themselves, save as opportunities of testing the anæsthetic properties of the drug, stronger alcoholic solutions, with varying but not with satisfactory results.

One felon was lanced after three applica-

tions, four minutes apart, of an eight per cent. solution; another, after similar applications of a stronger solution, perhaps ten per cent., with apparently the usual amount of pain. Not more favorable results were obtained in opening an abscess and a bubo after the local application of eight per cent. solutions of cocaine. In a few other minor operations, in which it was practicable to introduce hypodermically a few drops of a four per cent. aqueous solution, there seemed to be very little, if any, pain.

It has been suggested that the removal of the cuticle would insure absorption, and consequently anæsthesia or analgesia, in case it is administered for the relief of pain. Where it is practicable this may be done, or, better, perhaps, it may be administered hypodermically. Where it is administered for the relief of pain, no doubt the suggestion of Rusconi is a good one, to combine with the cocaine morphine in the injection.

But it is obvious that in many pathological conditions in which an operation is required, the removal of the cuticle or the introduction of the hypodermic syringe would involve as much discomfiture as the operation itself. In the removal of a needle from a lady's arm, where it had been imbedded for an unknown time, in the removal of a piece of a needle from a lady's thumb, which would otherwise have been very painful, and in removing a splinter, which required some probing, from the palm of the hand of a laboring man, a six per cent. solution was applied directly to the broken tissues immediately after they had been dried, and the pain was very much lessened; and I have no doubt that by the use of a ten or fifteen per cent. solution in similar cases insensibility could be rendered perfect. But the expense of the drug is a barrier to its coming into general use for such minor operations.

After these results, corroborated by the reports of similar results by others, I was somewhat surprised to see in the July THERAPEUTIC GAZETTE, under "New Observations with Cocaine," the statement by Rusconi, of Mailand (*Gazz. degli Ospitali*, 1885), that "a two per cent. solution painted on the healthy skin renders the latter rapidly pale. After two minutes sensibility has almost entirely disappeared, so that a needle may be inserted in the skin without being felt at all."

The first part of the statement as to its rendering the skin pale is probably true, as it is known that cocaine by its action on the vaso-motor nerves and coats of blood-vessels contracts the arterioles; but with the two per cent. solution I fail utterly in producing such a desirable state of insensibility. Under the most favorable circumstances—on mucous membrane, or on skin with the cuticle removed, or on eroded tissues—the drug does not penetrate deeply; hence the next statement seems remarkable: "Deeply-seated pains, such as in parametritis, can be assuaged by merely painting the abdominal region corresponding to the uterine locality" with a three per cent. solution of cocaine. Could such results be effected by the impression of so weak a solution upon the peripheral nerve-filaments?

Benumbing the sensibility of the abdominal walls could certainly have little influence in obtunding the sensibility of the uterus.

The next remark, made editorially, we presume, is timely, and certainly far more plausible: "We think that a tampon saturated with a two per cent. solution, and inserted into the vagina or uterus, would be more efficient." It is probable that Dr. Rusconi has used a purer salt, and, if so, a more costly one than we possess, and hence has secured better results; but certainly he who attempts or expects to secure entire insensibility of the healthy or diseased skin by the application of weak solutions of the commercial hydrochlorate of cocaine as it appears in our markets will be disappointed, and to him this statement, made in Rusconi's paper, will be perplexing at least: "In fact, such an anæsthesia, produced simply by painting the skin, is of sufficient duration to allow of the painless execution of incisions and minor operations."

If this statement were true, then indeed would minor surgery have found its panacea; but so far as my observations have gone, such solutions as Rusconi's, and even stronger ones, failed to produce local anæsthesia by "simply painting on the skin." What may be accomplished in the way of local anæsthesia of parts covered by integument with stronger solutions of cocaine remains yet to be determined.

Very respectfully,
J. U. BARNHILL, M.D.

COLUMBUS, O.

DISINFECTION OF DISCHARGES.

To the Editors of the THERAPEUTIC GAZETTE:

GENTLEMEN:—In a very edifying editorial in the *Medical News* of June 13 a word of advice is given to the multitudes of people

who are about this time "casting about for a spot for a brief sojourn away from home."

It is evident that the Plymouth epidemic has contributed greatly to suggest the said editorial. Everybody is on the lookout just now after water-supplies. A recent article on the same epidemic is also teeming with suggestions of warning against water-supplies.

Now this is all very well. We would be the first in choosing a summer resort to look out for all these things, but we would certainly also take special care to keep ourselves out of the range of practitioners who do not disinfect the discharges of their typhoid patients; and the public should be told this in plain words.

This neglect of disinfection is very general and very serious. The work of investigating the infecting powers of lower organisms goes on in vain for the medical practitioner. It seems that the surgeon alone is to reap the advantages resulting from these investigations.

We would like to see a few suits of malpractice to bring some medical practitioners to a sense of their duty in this matter.

J. G.

Notes and Queries.

CONIINE AND CONHYDRINE.

The observation that the molecule of coniine contains two atoms of hydrogen more than is represented in the formula $C_8H_{15}N$, previously associated with it, and that, therefore, its accompanying base, conhydrine ($C_8H_{17}NO$), could not stand in the relation of a hydrate to it, as had been supposed (*Pharm. Journ.*, xii. 443), has induced PROFESSOR A. W. HOFMANN to continue his investigation of the subject. When Wertheim eliminated the elements of water from conhydrine by treatment with phosphoric anhydride he obtained a basic substance, having the composition represented by the formula $C_8H_{15}N$, which he supposed to be coniine. In respect to the latter point, since it has now been ascertained that coniine has the composition $C_8H_{17}N$, of course he was mistaken. But Professor Hofmann reports (*Berichte*, xviii. 1, 109) that in the basic oil obtained by the splitting off of water from conhydrine he has found two, if not three, different bases resembling coniine, which are isomeric and represented by the formula $C_{18}H_{15}N$. The first described, a-coniceine, boils at 155 to 156° C., is colorless when pure, permanent when exposed to air, difficultly soluble in water, not distinguishable in odor from coniine, but differs from that base in forming a crystalline picrate that is nearly insoluble in water and difficultly soluble in cold alcohol. The same base can also be obtained from coniine through the intervention of a bromine derivative; on the other hand, a-coniceine can be converted into coniine by digestion with excess of hydriodic acid and phosphorus at 200° C. The second base described, a-coniceine, is, when separated, solid at ordinary temperatures and forms acicular crystals melting at 41° C.; it boils at almost exactly the same temperature as coniine (168° C.), smells like that base, is extraordinarily volatile, slightly soluble in water, and freely soluble in alcohol and ether. The third base, y-coniceine, which can also be obtained from coniine, is a colorless, transparent liquid base, having a coniine-like odor, boiling at 173° C., lighter than water, in which it is only slightly soluble, but forming with acids crystalline salts that are extremely deliquescent. The a-coniceine and y-coniceine are powerful poisons, the fatal dose for rabbits being of the former about one-eighth and of the latter about one-fifteenth that of coniine. These compounds, in Professor Hofmann's opinion, represent three out of six theoretically possible isomeric amines. Professor Hofmann's exhaustive investigation was delayed more than once for want of conhydrine, the supply of which was due to the liberality of Herr Merck. This gentleman in a letter says that the yield of conhydrine is very variable. Sometimes conium-seed will yield little coniine and more than the usual proportion of conhydrine; sometimes the yield of both is small. But he has not yet been able to determine whether this is due to the influence of the maturity of the seeds or the conditions under which the plant is grown.—*Pharmacist*, June, 1885.

A DRUGGIST'S MISTAKE.

A prescription calling for 1.5 milligrammes of atropine in 30 grains of water was lately dispensed by a Brooklyn drug clerk with fatal results. The medicine was really intended for external use, but the prescription was not so marked by the doctor, and the clerk made matters worse by dispensing 1.5 grammes instead of milligrammes, which was of course one thousand times too much. A trial resulted, and the evidence taken was quite lengthy. The jury brought in a verdict charging the clerk with gross negligence, and also attaching blame to the doctor for not

writing on the prescription the words "For external use."

CASCA BARK.

The use of this bark was introduced into medicine by Dr. Lauder Brunton for mitral disease of the heart. It is the bark of *erythrophlæum guineense*, a leguminous tree found in Central and West Africa, and used by the natives as an ordeal poison. It is met with in flat or slightly curved pieces, of irregular size, and about a quarter of an inch in thickness, of a dull red-brown color, smooth or nearly so on the inner surface, with a short granular fracture, very hard externally, uneven, warty, and fissured. It is inodorous, and has an astringent, acrid, and bitter taste. When powdered it excites violent and persistent sneezing; great care should be taken in powdering it to prevent the dispersal of the powder in the air, either by moistening the bark with spirit, or by covering the mortar with a cloth.

The active properties of casca bark are due to the crystalline alkaloid *erythrophlæine*, which is soluble in water, alcohol, and acetic ether, but nearly insoluble in ether, chloroform, and benzol. With sulphuric acid and permanganate of potassium it gives a violet coloration, less pronounced than that produced by strychnine, and soon changing to a dirty brown. The active principles of the bark are soluble in water and alcohol. The bark may be distinguished from other barks as follows: It gives with boiling water an infusion of a dark reddish-brown color, which deposits a brownish-red precipitate on cooling, but the supernatant fluid remains turbid from suspended particles, which do not subside and are not removed by filtration. It becomes clear when heated, but turbid again on cooling. Both the infusion and tincture become darker on exposure to the air. An aqueous solution of the bark gives a brownish-black precipitate with perchloride of iron, also a precipitate with tincture of galls and tannin, mercuric, stannic, and gold chlorides, and with nitrate of silver, but little or no precipitate with perchloride of platinum.

The most conspicuous effect of the drug is a general muscular relaxation, so that an animal poisoned with it will remain quiescent in whatever position it is placed. In a fatal dose, vomiting, contracted pupils, slow and irregular action of the heart, a quick and labored respiration are observed, followed by death, with general convulsion and sudden dilatation of the pupils, consciousness being preserved to the last. On examination, the membranes of the brain are found to be highly congested. The vomiting takes place whether the drug be given internally or by hypodermic injection, but purging only takes place if given internally. The paralysis is explained by Drs. Brunton and Rye as being due not to a direct action on the muscles, motor nerves, or the spinal cord itself, but to the contraction of the blood-vessels lessening the supply of blood to those parts. Dr. Brunton's experiments have shown that it acts directly on the ends of the vagus nerve in the heart, and also on the nerve itself as much as digitalis does. The final slowing of the heart is due to the action of the drug on the ganglionic apparatus contained in the heart itself.

In the Gulstonian Lectures published in 1877, Dr. Brunton remarks that digitalis has hitherto been our great resort in mitral disease of the heart, but that in casca we have probably a drug more powerful still,—at least its effects upon the arterioles appear to be greater than those of digitalis, and it is quite possible that it may succeed in those cases of mitral disease where digitalis fails. The action of casca is to strengthen and slow the heart, to contract the arterioles, and increase the secretion of urine. The sign of its toxic action is the reduction in the amount of urine passed, and when this symptom appears its use should be discontinued. It does not seem to be a cumulative poison, since in two days after leaving it off the urine usually becomes normal in amount. Dr. David Drummond, who has tried it in several cases, considers it to be a very useful addition to our somewhat restricted list of therapeutic agents in the treatment of cardiac cases, serving like digitalis to lower the pulse-rate, and whilst increasing the force of the systole, to render the heart more regular, although in some cases digitalis acts with more rapidity and certainty. The cases in which he considers digitalis to be the more suitable drug are those in which stimulation of the cardio-inhibitory centre in the medulla is required, and casca in those where a remedy to act upon the peripheral inhibitory apparatus in the heart is needed. It appears to act as a diuretic by contracting the arteries and increasing the blood-pressure. Casca does not seem to have been tried as a local or external application in inflammation, to lessen the supply of blood by contracting the vessels.

The tincture is the preparation chiefly used,

and is made of the strength of one part in ten of proof spirit. It is given in doses of 5 minims, increased to 10.—*Midland Medical Miscellany*, June 1, 1885.

THE THERAPEUTIC USE OF BI-HYDROBROMATE OF QUININE.

This article contains from seventy-five to seventy-six per cent. of pure quinine and about eighteen per cent. of bromine, and to the combined action of these two ingredients are due the marked antifebrile and nervous tonic and sedative effects of the preparation. It is readily soluble in water. From 2 to 3 decigrammes, or over, may be given internally, in capsules, while it is also suited for subcutaneous use. MAXIMOWITSCH (*Centralblatt für klinische Medicin*, June 20, 1885) has employed this drug with marked success in various febrile diseases, especially in intermittent fever and in phthisis.

TWO CASES OF ACUTE MYRINGITIS RELIEVED BY COCAINE.

DR. B. J. BALDWIN, of Montgomery, Ala., writing to the *N. Y. Medical Record*, July 4, 1885, states that he has recently seen two cases of acute inflammation of the membrana tympani which were speedily and effectually relieved by instillations of cocaine. The first case was that of a young lady who had suffered intensely for two days, obtaining no relief from any of the ordinary remedies. There was a blister the size of a hemp-seed in front of the umbo. The doctor had refrained from using cocaine, relying upon the assertion of Knapp that the drum-membrane was unaffected by this drug. However, he determined to try it at last, and was no less delighted than astonished to find the pain entirely relieved in six minutes after two applications. The blister disappeared, and the ear was well in four days. The second case was that of a man 24 years of age, an inspection of whose drum-membrane showed a tense, yellowish, transparent blister involving the posterior and superior portions. This disappeared in two days without having ruptured. The patient suffered agony for a few hours until a cocaine solution could be obtained, but within seven minutes after the instillation of a few drops of a four per cent. solution was entirely free from pain, and remained comfortable under repeated applications of the drug during the three subsequent days of active inflammation. Dr. Baldwin recognizes that two cases are not enough to base any positive conclusions upon, but he maintains that they are amply sufficient to controvert Knapp's statement to the effect that cocaine will not anæsthetize the drum-head.

MURIATE OF PILOCARPINE IN HICCOUGH.

The unpleasant and lasting sequelæ which sometimes follow the exhibition of pilocarpine have to a great extent prevented its coming into the general use which its known virtues would seem to guarantee it. There are some complaints, however, so very distressing that the patient is willing to take almost anything that promises relief. One of these is obstinate singultus, or hiccough. A case of unusual obstinacy was recently brought to the notice of the editor of the *Iowa State Medical Reporter* (May, 1885), in which the hiccough had persisted, in spite of every effort to subdue it, for over forty-eight hours. It was promptly relieved by a hypodermic injection of ¼ grain of muriate of pilocarpine. Except a profuse perspiration, lasting a comparatively short time, no unpleasant results followed.

ABSORBENT POWER OF THE CUTICLE.

DR. JUHL has been making experiments on the absorbent power of the human cuticle for fluids in the form of spray. The lower extremities were isolated from the rest of the body by a partition, the opening in which was carefully packed with India-rubber so that no fluid might pass to the rest of the body. The spray was then made to play upon the isolated extremity, and only normal skin was exposed to it, all patches which were unduly reddened being covered with gutta-percha tissue firmly fixed with chloroform. The skin was carefully cleansed with soap and water before the commencement of the experiment, and after the spraying the superfluous fluid was wiped off, the leg rubbed with fat, and a close bandage applied, before the limb was removed from its isolation. The drugs used were ferrocyanide of potassium, salicylic acid, salicylate of sodium, iodide of potassium, and tincture of iodine, and all of them were found, in greater or less quantity, in the urine. Alcoholic solutions were found to be absorbed more readily than aqueous.—*British Medical Journal*, June 20, 1885.

GLYCERITE OF IODINE IN GONORRHŒAL VAGINITIS.

SIGMUND (*Bull. de la Soc. Royale de Pharmacie*, June, 1885) recommends the following formula in gonorrhœal vaginitis:

℞ Iodine, .08 grm.;
Iodide of potassium, .40–.80 grm.;
Pure glycerin, 20 grms.

S.—A tampon of cotton may be soaked in this solution and inserted into the vagina.

POISONOUS ALKALOIDS IN THE URINE.

M. CHANTEMESSE has summarized the history of this subject in an article of which the following is an abstract.

Professor Bouchard has drawn attention to the poisonous character of normal urine. This fact has been often previously asserted, its various constituents, from urea to potassium salts, being incriminated. In 1880, Pouchet found an alkaloidal substance in urine. Bouchard has lately proved that alkaloids normally exist in the bodies of living animals. They are formed in the intestine by the action of the vegetable organisms, which effect the intestinal putrefactive and fermentative processes. These alkaloids are absorbed into the blood, and appear in part in the urine.

The following physiological effects are stated by Bouchard to follow the injection of urine into the veins of a rabbit: contraction of pupils, slow respiration, muscular weakness, lowered temperature, abolition of reflexes, and torpor followed by death, which takes place by arrest of the respiration. Having established the poisonous character of urine, he sought next to determine the particular constituent to which this effect is due. He found that it required much more urea to kill an animal than was contained in a poisonous dose of urine. Uric acid was nearly harmless, as were the extractive matters, while the potassium salts, though undoubtedly poisonous, were not so in the small quantities contained in the urine injected. After decolorizing with animal charcoal, the urine lost half its toxic power. The poison is not volatile, for it resists boiling, and is equally present in extracts of urine as in urine itself. Extract of urine acted peculiarly; it did not cause contraction of the pupils, but produced salivation. This alkaloidal substance which produces salivation is met with also in muscle, liver, and blood. In normal urine its proportion is very small.

Lépine and Guérin have shown that these alkaloidal bodies are increased in various acute diseases, such as typhoid fever and pneumonia, but they have failed to find any increase in the urine of diabetes, catarrhal jaundice, cirrhosis with jaundice, alcoholic cirrhosis with jaundice, in the fluid withdrawn from the pleura and peritoneum of the last case after death, and also from the body of a patient dead of Addison's disease, or in the peritoneal fluid drawn off during life from a case of chronic peritonitis. The alkaloid found in the urine of typhoid fever stopped the heart in diastole, while that of pneumonia stopped it in systole.—*British Med. Journ.*, July 4, 1885.

OLIVE OIL AS A MENSTRUUM FOR DISSOLVING COCAINE FOR APPLICATION TO THE EYE.

DR. JOSEPH A. ANDREWS, of New York, writes to the *Medical Record*, July 18, 1885, as follows: "In addition to the occasional benefit derived from the use of oil dropped into the eye in recent abrasions from burns, and in other painful affections of the cornea in which atropia is indicated and cocaine may likewise be serviceable, the plan of dissolving the cocaine in oil seems to insure a longer contact of the remedy, and a smaller quantity is required to effect anæsthesia. Neither the salt of cocaine nor that of atropine is soluble in olive oil, but the alkaloid dissolves readily in this menstruum without the addition of alcohol, it being only necessary to expose the solution for a few minutes to a gentle heat in a water-bath. Castor oil is not a desirable menstruum on account of its irritating qualities; and the oleate of cocaine, for the same reason, is still more objectionable as an application to the eye."

OXYGEN IN ECLAMPSIA.

As is well known, oxygen has the power of weakening or inhibiting exaggerated reflexes, and starting with this fact, Prof. Lachkievitch has recently proposed the introduction in obstetrical practice of inhalations of oxygen, especially in the treatment of cases of eclampsia of reflex origin. Two such cases came under the attention of DR. FAVRE (*Gazette Méd. de Paris*, June 6, 1885), who, following the advice of Lachkievitch, had resource to the inhalations of oxygen, and obtained a brilliant result in both cases. The author, indeed, believes that a reservoir of oxygen should be regarded as quite as indispensable an obstetrical apparatus as the forceps. Inhalations of oxygen have also, we believe, been em-

ployed with success in France in the treatment of obstinate vomiting of pregnancy.

BROMIDE OF CAMPHOR IN CHOREA.

M. BOURNEVILLE (*British Medical Journal*, June 20, 1885) has treated successfully, at the Bicêtre, a case of chorea in a child, aged 6, with bromide of camphor. The first attack happened in 1884, and was caused by fright; the treatment then consisted of alkaline baths, valerianates, potassium bromide, and purgatives. In February, 1885, the child was again taken to M. Bourneville, choreic movements having reappeared a week previously, followed by all the characteristic symptoms of the disease. Purgatives, valerian, iodide of iron, iodide and bromide of potassium were again administered. Ten days subsequently capsules of bromide of camphor were given for two successive nights, then two every evening and morning for five days; afterwards three, evening and morning. The child's condition gradually improved; the capsules were discontinued on March 16, and resumed on March 19. Cod-liver oil and gentian wine were also prescribed. On March 26 the capsules were left off; the child continued to improve.

THE CAUSE OF CORNEAL OPACITY FOLLOWING INSTILLATIONS OF COCAINE.

DR. J. CRAFT, of Cleveland, O., writing to the *N. Y. Medical Record*, July 4, 1885, offers an explanation of the evil results sometimes observed to follow the continued employment of cocaine after operations upon the subconjunctival tissues. He recalls the fact that the drug acts not only as a local anæsthetic, but also as an excitant of the vaso-motor nerves, causing a marked depletion of the vessels of the part. "Now, I can readily see that in an operation upon an eye in which the conjunctiva is healthy and its vessels scarcely discernible this second action might be overlooked; and the repeated application of cocaine, to relieve any pain subsequent to the operation, might occasion such absolute depletion of the vessels as to produce turbidity, and, finally, even necrosis of the cornea from lack of nutrition. Atropine instilled into the eye reverses this state of affairs; vaso-motor irritability is overcome, reaction ensues, and the turbidity of the cornea clears up. Such, I conceive, from my experience with cocaine, is the cause of the unpleasant effects recently reported." Dr. Craft suggests that the artificial production of anæmia may be prevented, without impairment of the anæsthetic effect, by the addition of a little atropine to the cocaine solution.

THE EFFECTS OF IMPURE IODIDE OF POTASSIUM IN TABES DORSALIS.

M. HUCHARD has treated a case of locomotor ataxy with iodide of potassium, administered in daily doses of a drachm. After the first dose the patient manifested symptoms of iodine-intoxication. The dose was then lowered to 12 grains, gradually increased to 15. Dyspnœa, with œdema of the glottis, became so urgent that tracheotomy had to be performed, and the patient progressed favorably. The laryngeal spasm was evidently provoked by the œdema of the glottis, which was found to be due to the use of impure iodide of potassium containing a certain proportion of iodates. Other patients, both in M. Huchard's and in other wards, manifested symptoms which could be attributed to the action of impure iodides; therefore, it could not be supposed that this special patient was peculiarly susceptible to its influence.—*British Medical Journal*, June 20, 1885.

COCAINE IN INFANTILE CORYZA.

As is well known, the coryza of nursing infants may, by preventing suckling, prove a very serious affection. It can be cured, however, according to SEMTCHENKO (*Gazette Méd. de Paris*, June 6, 1885), by the introduction into the nasal cavity six times daily of 2 drops of a two per cent. solution of the hyrochlorate of cocaine. According to the author, children which previously had obstinately refused to nurse will commence to suckle a few minutes after the first application of the cocaine, and the coryza is ordinarily cured after about four days of this treatment.

CONDURANGO BARK.

Condurango bark, from *Gonolobus condurango*, which some years since enjoyed a passing notoriety as a remedy against carcinoma, is now officinal in the German Pharmacopœia. It has been observed that an aqueous extract of the bark prepared without heat becomes strongly turbid when warmed, resembling in this respect one prepared from the root of the nearly-allied *Asclepias vincetoxicum*, from which M. Tanret recently separated the curious principle that he has named vincetoxin,

and considers to represent a new class of compounds.

Dr. Vulpius was therefore induced to submit some condurango bark to the same treatment as that followed by M. Tanret in respect to vincetoxicum root, and he reports that he obtained products soluble and insoluble in water, corresponding, in their behavior, in every respect with what M. Tanret considers to be a soluble and insoluble modification of vincetoxin. An aqueous solution of the "soluble" form became turbid upon heating, and a two per cent. solution formed a tolerably stiff jelly whilst still far below the boiling-point.

Whether these products are also identical in composition with vincetoxin, or whether they will have to be added to the new group under the name "Condurangin," has yet to be determined by analysis. An aqueous solution, after several hours' heating, with one per cent. solution of sulphuric acid reduced alkaline cupric tartrate, indicating the glucosidal nature of the new body.

Dr. Vulpius also observed slight traces of a basic substance, and of a compound of an acid character, insoluble in water.—*Pharmaceutical Journ. and Trans.*, June 27, 1885.

A NEW METHOD OF INTESTINAL SUTURE AFTER ENTERECTOMY.

The Paris correspondent to the *British Medical Journal* (July 11, 1885) writes that MM. Duplay and Assaki have tested a new method of intestinal suture on animals. One end of the divided intestine is invaginated into the other, and the mucous membrane of the upper end is immediately in contact with that of the inferior. A double thread is passed through the canal thus formed, and only two or three superficial sutures are then inserted. About fifteen days after the operation the passage is perfectly free. Microscopic examination demonstrated that there was uninterrupted continuity of the serous membrane, and not the slightest indication of an inner valvular projection.

AN ANTISEPTIC OINTMENT.

Dr. M. B. Ward, of Topeka, Kansas, sends the formula of an antiseptic ointment which he found very useful while in charge of the hospital department of the Mexican Central Railway. It consists of iodoform, ʒj; subnitrate of bismuth, ʒvij; vaseline, ℥ij. This formula was not strictly adhered to in all cases; but was varied according to individual indications. Another formula, suggested by Dr. J. W. Thayer, was iodoform, ʒj; boracic acid, ʒij; subnitrate of bismuth, ʒiv; vaseline, ℥ij. The ointment was spread upon a sheet of absorbent cotton sufficiently large to cover the wound and a considerable extent of surface around it. "The dressing seemed to be the best suited to the after-treatment of amputation wounds. It could be removed when necessary with the greatest facility, as it never adhered to the wounded surface. I usually allowed the first dressing to remain undisturbed for from four to six days. There never was present, even in the warm climate of Mexico, the least disagreeable odor, so common when carbolic dressings are used." This dressing was used in over four hundred cases of injuries of various kinds, including ten gunshot wounds and numerous amputations and other capital operations, and of this number there were but two deaths.—*N. Y. Medical Record*, July 18, 1885.

VERATRINE IN PRURITUS.

In pruritus occurring about the time of the menopause, Chéron (*Journ. of Cutaneous and Venereal Diseases*, July, 1885) recommends the use of veratrine, internally and externally, giving from 2 to 6 pills daily, each containing $\frac{1}{120}$ grain. Externally, he uses an ointment containing from 2 to 3 grains of veratrine to the ounce of simple ointment.

THE PHYSIOLOGICAL AND THERAPEUTICAL ACTION OF PHOSPHATE OF LIME.

On the strength of his clinical observations and physiological experiments, M. Dusart has demonstrated that the phosphate of lime is an excellent general nutritive stimulant. The phosphate of lime is intimately associated with animal activity and the maintenance of normal temperature, so that its quantity is at a maximum in organisms of the highest activity, while it diminishes gradually as the animal scale is descended. Moreover, if its normal quantity be diminished, whether by the effect of some disease or through unsuitable alimentation, the most marked disturbances of nutrition invariably follow.

M. Dusart has employed this drug in a large number of cases with the best results. He mentions the following diseases in which its use may be followed to advantage: the anæmia of lactation, rachitis, the inanition of

mineral poisons, Pott's disease, albuminuria, and in fractures.—*Le Progrès Médical*, May 23, 1885.

HOW TO REMOVE A PLASTER BANDAGE.

Dr. G. Krosz, according to the *Medical Record* of July 18, 1885, writes that the removal of a plaster-of-Paris dressing is greatly facilitated by first scraping a groove with a knife, and then dropping along it a solution of caustic soda. In a few minutes the plaster becomes pulpy along this line, and the bandage can then easily be cut through. If two lateral grooves be made instead of one, a lid can be cut out of the bandage, the leg can be lifted up for the necessary inspection and returned, the lid being reapplied and retained with a roller bandage. In this way the plaster dressing is not cracked, and the limb is not jolted in the efforts to remove the bandage. By this method, also, it is a very easy matter to cut any fenestra that may be needed.

THE THERAPEUTIC VALUE OF CHLORIDE OF CALCIUM.

Dr. Creighton (Eastbourne), at a recent meeting of the Southeastern Branch of the British Medical Association (*British Medical Journal*, June 20, 1885), described the great improvement which he had obtained in cases of scrofula treated by this drug. He advocated it in glandular enlargement in the neck, in suppuration of glands, and also in caries due to scrofula. In support of this he related cases. He recommended the crystallized chloride as the best form. The doses he gave were smaller than those generally used, namely, 1 to 3 grains for young children, and rarely more than 12 to 15 grains for adults. A solution in syrup rendered the salt fairly palatable, and it should be given in milk, after meals. It was generally necessary to continue treatment for a long time, even for some years, and in cases where improvement or apparent cure resulted, symptoms of relapse sometimes necessitated occasional return to the treatment.

THE INCOMPATIBILITY OF CHLORAL HYDRATE WITH POTASSIUM BROMIDE AND ALCOHOL.

The decomposing of a prescription containing potassium bromide, chloral hydrate, tincture of opium and camphor, and syrup of ginger led Prof. George F. H. Markoe (*Boston Medical and Surgical Journal*, July 23, 1885) to study the incompatibility of chloral. The various experiments which he made led him to the practical deduction that alcoholic preparations of all forms should not be prescribed with chloral hydrate, especially not with bromides of potassium and sodium, because if the solutions used are at all concentrated the chloral will separate as an alcoholate, float on the surface, and great risk will be incurred of giving a large overdose, the patient having received no caution as to shaking the contents of the bottle before taking the dose.

ON THALLINE.

Huchard found the exhibition of thalline to cause reduction of temperature and perspiration in doses of 25 to 75 cg. Dujardin-Beaumetz regards the medicine as highly objectionable, as it causes a destruction of the red blood-corpuscles, as proven by the formation of methæmoglobine. Brouardel and Loye confirm this testimony of Dujardin-Beaumetz, while Huchard did not find any methæmoglobine in the blood of the animals on which he experimented with thalline. Resorcine and antipyrine act solely on the centres of calorification and leave the blood-corpuscles intact. —*Progrès Méd.*, No. 14, 1885.

IODIDE OF POTASSIUM IN HABITUAL ABORTION.

M. Goshkevich, writing in the *Vrach*, says that, though it is usually believed that iodide of potassium tends to produce abortion, and its use is therefore generally avoided in pregnancy, he advises that it should be given in cases of habitual abortion. The causes of this are obscure, but the best known of them is undoubtedly syphilis. With this in view, he prescribes the iodide even when no syphilitic symptoms have been recognized, and gives two cases to prove the advantage of this. The heart-sounds and movements of the fœtus, both of which had become almost imperceptible, improved under 5 grains three times a day, and diminished whenever the medicine was stopped. In each case the normal period was completed, though previously both the patients had been accustomed to miscarry during the second half of pregnancy.—*British Medical Journal*, July 11, 1885.

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